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THE DESIGN AND DEVELOPMENT OF PROTOTYPE INSTRUCTIONAL MATERIALS FOR PREPARING EDUCATIONAL ADMINISTRATORS. FINAL REPORT.

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UNIVERSITY COUNCIL FOR EDUCATIONAL ADMINISTRATION

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THE MAJOR OBJECTIVE OF THE ARTICULATED MEDIA PROJECT (AMP) WAS TO DESIGN PROTOTYPE INSTRUCTIONAL MATERIALS FOR USE IN PREPARING EDUCATIONAL ADMINISTRATORS IN SUCH A WAY THAT CONCEPTS AND REALITY-ORIENTED ADMINISTRATIVE SITUATIONS WERE JOINED DURING THE DESIGN PROCESS. THE STUDY ALSO ATTEMPTED TO PROJECT POTENTIAL USES AND EXTENSIONS OF SPECIFIC PROTOTYPE MATERIALS CREATED AND TO EXPLORE SOME OF THE IMPLICATIONS OF THE AMP EXPERIENCE. THREE DIFFERENT TYPES OF PROTOTYPE MATERIALS WERE DEVELOPED IN THE PROJECT--(1) A MANAGEMENT BARGAINING GAME, (2) MATERIALS DESIGNED TO GENERATE AND GIVE MEANING TO A NUMBER OF CONCEPTUAL FRAMEWORKS RELATED TO PLANNED CHANGE, AND (3) A SET OF TWO COMPUTERIZED, SIMULATED ADMINISTRATIVE SITUATIONS BASED UPON SYSTEMS CONCEPTS. DETAILED INFORMATION IS PRESENTED ON THE VARIOUS MEDIA AND MATERIALS DEVELOPED. GENERALIZATIONS ARE MADE ABOUT THE PROTOTYPE MATERIALS, ORGANIZATION AND PROCESSES, AND IMPLICATIONS FOR THE FUTURE. (HM)

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January 1968

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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January 1968

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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GENERAL SUMMARY

A number of prototype instructional materials for preparing educational administrators were designed and developed in AMP. Among these were a bargaining game in the area of professional negotiations by John Horvat, a set of materials designed to help administrators understand and cope with planned change by Loren Downey, and two computer-based simulated administrative problems by Paul Cullinan and Robert Ruderman. These materials have all had some field testing, and they were previewed with professors of educational administration and administrators in regional seminars in various parts of the nation. The negotiations game is being made available for widespread use through the cooperation of Charles E. Merrill Books, Incorporated. Plans designed to extend uses of the materials on planned change and the two computer-based simulated problems are also underway.

In developing AMP materials special attention was given during the design process to the attainment of re-enforcing relationships between concepts and simulated administrative situations. Therefore, concepts shaped the materials and are represented in the products to a greater extent than in previous approaches to the development of "reality-oriented" materials in educational administration. Feedback obtained at the three regional seminars and information from field test situations suggest that the materials created will have widespread and varied uses.

The development and testing of instructional materials is one viable strategy for improving programs for preparing educational administrators. The AMP effort represented an organizational approach to the development of materials that was new in educational administration. Even though problems were encountered, the results were such that a further extension of development efforts of the type represented in AMP is indicated. To facilitate the unfolding of such efforts a National Development and Resource Center for Preparing Educational Administrators is projected and its establishment is recommended.

CHAPTER ONE

A General Description of the Articulated Media Project

by Jack Culbertson
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The major purpose of this chapter is to provide an overall description of the Articulated Media Project (AMP). Included in the description will be: the background of the Project, the general problem with which the AMP was concerned, the Project's major objectives, the methods used to achieve the objectives, adaptations made during the endeavor, and general outcomes of the Project. Since the chapters to follow treat the various aspects of AMP in detail, the purpose of this chapter will be to provide an overview of the Project.

THE GENERAL PROBLEM AND ITS BACKGROUND

Since its inception, The University Council for Educational Administration (UCEA) has assumed that one viable strategy for changing preparatory programs for educational administrators is that of developing, testing, and distributing new instructional materials of use to professors as they perform teaching functions. Among the "reality oriented" materials which UCEA had made available when the AMP proposal was formulated in late 1963 were the following: a simulated school utilizing in-basked problems, written cases describing administrative decision problems and situations; and filmed cases depicting examples of administrative decision making and communication. To facilitate the adoption and use of the new instructional materials by professors of educational administration. UCEA had established "Institutes on New Instructional Materials" designed specifically to inform prospective instructors about the nature of the materials and to orient them to differing strategies and techniques for using them. The arrangements established for making available "reality oriented" materials and for orienting professors in their use undoubtedly helped to account for the fact that by late 1963 more than 100 institutions were using one or more types of UCEA materials made available to them. Thus, a major background factor bearing upon the development of the AMP project was UCEA's capacity to support preparatory programs in educational administration in a number of universities through the development, testing, and distribution of special instructional materials.

Another background factor stemmed from feedback obtained by the UCEA staff on the use of instructional materials by professors. This feedback suggested that an important, if not the most important, problem facing professors using the materials in instructional situations was that of effectively identifying and using concepts and theories to illuminate and to give meaning to administrative decision problems represented in "reality oriented" situations. With regard to the use of the Whitman Simulated School, for example, professors in different universities experimented with a variety of conceptual frameworks as they sought to relate theory and fact in educational administration.(1) The problem was one of the most frequently discussed when experiences in using the Whitman Simulated School were examined by professors of educational administration.

In assessing experiences of professors in other fields who had used "reality oriented" materials for instructing administrators, it became evident that the problem of effectively relating theory and fact when using these materials preceded the establishment of UCEA and extended into other fields of administration besides education. It certainly was very evident, for example, in the tradition of using cases for instructional purposes in business and public administration.(2) The experience gained in UCEA with "reality oriented" materials and the assessment of related traditions in other fields of administration led to a conclusion that was basic to the formulation of the AMP proposal. The conclusion was that personnel who have developed materials in the past have given little attention to the theory-fact problem while the materials were being developed and before the materials were made available for instructional use. Case preparation in business, public, and educational administration, for example, has generally focused upon the description of actual administrative problems and situations with little attention being given during preparation to concepts which might bear upon the problems and situations described in cases or to concepts which might be used when the completed cases are used in instructional situations.(3) It is also evident that even though a conceptual grid was developed to guide the creation of the Whitman Simulated School, the purpose of this grid was more to ensure that a representation of problems be simulated than to make theory-fact relationships in instructional situations more cogent.(4)

Stated in general terms, then, the problem of AMP stemmed from certain perceived and assumed inadequacies in traditional approaches to the design of "reality oriented" materials for preparing educational administrators. One of the major questions which AMP sought to answer was: can the relationships among purpose, concepts, and "reality-oriented" situations all be given careful consideration during the process of designing the instructional materials? It was assumed that it would be easier for professors to relate theory and fact effectively in learning situations involving materials use if the question could be answered positively. The major objectives of AMP were closely related to the major question just stated and the assumption underlying it. These objectives were: (1) to create some prototype instructional materials which articulated (a) instructional purpose, (b) concepts on administration and (c) "reality oriented" administrative situations; (2) to project potential uses of and extensions of the specific prototype materials created; and (3) to explore the implications of the AMP experience for further materials development. By acheiving prototype materials and ideas related to them, it was assumed that professors would have new aids and techniques for providing practicing and prospective administrators with improved learning experiences. It was also anticipated that the newly designed materials would not only stimulate professors to extend and refine the materials but also to create new ones. Finally, it was hoped that the materials might generate studies of administrative processes and of the learning of administrative processes.

HOW AMP DEPARTED FROM PREVIOUS EFFORTS TO DESIGN INSTRUCTIONAL MATERIALS

AMP sought to build upon past efforts to design instructional materials in educational administration and, at the same time, to depart from these efforts. Further light can be shed on AMP and its purposes by describing how it did depart from previous approaches to the design of "reality oriented" materials.

First, as already implied, AMP placed a major emphasis upon the role of concepts as a guide to materials design. Instead of starting with field situations and problems, which traditionally has been the more typical approach to developing "reality oriented" materials, the starting point became the identification of concepts which could help shape design. Concepts chosen by AMP staff members to guide materials design emphasized the newer and more emergent insights in educational administration. By drawing upon emergent concepts related to such timely problems as professional negotiations, systems analysis, and educational change, it was hoped that new dimensions would be added to preparation not only through the specific "reality oriented" materials designed but also through the particular kind of concepts chosen as guides for creating the materials. It should also be noted that not only did AMP seek to relate concepts and "reality oriented" situations in materials design but it also sought to achieve, in materials design, articulation among major elements in the design. More specifically, and contrary to the patterns of most past efforts in educational administration, AMP sought to achieve explicit relationships between and among concepts, materials, media, and purpose. It was from this orientation that the name "Articulated Media Project" was derived.

Another way in which the Articulated Media Project departed from the tradition followed in the design of earlier "reality oriented" materials was in its efforts to extend the use of modern media in designing instructional materials for preparing educational administrators. A study conducted during the course of AMP, as well as information gathered before AMP was implemented, indicated that the media available for use in the preparation of educational administrators was apparently very limited. It seemed clear, for example, that there was a much greater range of media available to those preparing teachers than there was to those preparing educational administrators. In addition, such modern media as computer programs and management games designed for specific use in preparatory programs were almost non-existent. In the prototype materials it was hoped that the range of media available for use could be extended.

Finally, the Articulated Media Project differed from traditional approaches in its manner of organization. Most of the "reality oriented" materials related to educational administration in the past have evolved from the efforts of professors and graduate students in the general conduct of their work. AMP, on the other hand, represented a special effort of a staff, which, for the most part, had no other assignment than that of designing new materials. Noteworthy, also, was the fact that the staff, during the project, was relatively isolated from the usual environment in which students and professors work, although they did interact with professors and students at various stages of the project.

In summary, AMP departed from past practices in instructional materials design and preparation in several ways. Departures were represented in AMP's efforts to define instructional purposes before preparing materials, to highlight concepts as the beginning point for materials specification, to articulate various elements in instructional materials designed, to extend the number and quality of media used in materials design, and to organize a systematic effort at design somewhat detached from actual instructional situations.

ADAPTATIONS MADE DURING THE ARTICULATED MEDIA PROJECT

Initially, the Articulated Media Project aspired to outline a two-year curriculum for preparing educational leaders as a framework from which to launch materials development. The outline was to be achieved by drawing upon existing literature, by soliciting the views of leading professors and educational administrators, and by synthesizing the results. After conferring with the AMP General Advisory Committee members and giving careful consideration to the question of how the project could have its greatest impact, the staff decided to give up the idea of outlining a two-year curriculum for educational leaders. Rather, the choice was made to select certain facets of curriculum and to use these more limited target areas as guides for designing materials. Rather than generalizing about the outlines of a total curriculum, the AMP staff decided to use their experiences in materials design to identify implications related to the process of designing instructional materials in educational administration. This adaptation was made after the staff concluded that such a reorientation in the project would likely make for more unique and impactful results.

During the early phases of the project, considerable task force work to involve professors of educational administration, practicing educational leaders, and social scientists was projected. It was hoped that through such involvement assistance could be obtained in developing conceptualizations needed to guide instructional materials design. However, this assumption did not prove to be a sound one. The limited amount of time and resources available to compensate task force members, the many counter demands upon them, and the complexity of the task required a change in procedure. It became necessary for the project staff to take on more of the task of basic conceptualization than was earlier anticipated. Therefore, task force work was substantially more limited than originally projected.

Another change of significance related to the design and specification of materials, on the one hand, and the development of prototype materials, on the other. In the early phases of the project, it was assumed that work would be limited to design and that no production would be undertaken. However, experience made clear the necessity of operationalizing selected prototype materials. This was desirable for two reasons. First, it became clear that the development of specifications was dependent, in some instances, upon having some actual experience in producing materials. In efforts to develop a computer-based research and instruction facility, for example, it became necessary to program concepts on the computer in order to have an adequate basis for specifying needed developments in the area.

Experience with professors also pointed up the need for specific prototype materials. In discussing issues related to design, it was difficult to communicate meaningfully without having concrete illustrations of prototypes. Since a major objective of the project was to achieve a basis for stimulating and involving professors in the production, development, and field testing of instructional materials following the project, the desirability of having prototype materials for follow-up work and for dissemination purposes became apparent.

One other adaptation needs to be made explicit. Due to the fact that the staff had to (1) take on a greater amount of the task of conceptualization than earlier contemplated and (2) devote time to the actual production of prototype materials, there was some shift in the amount of time available for media design. It became very clear, in other words, that the development of adequate conceptual bases for instructional materials was fundamental to design; further, that the constraints surrounding this task were greater than initially contemplated. The result was that a smaller number of prototype materials were designed, but these were developed in a more intensive and refined fashion than earlier contemplated.

PROCEDURE

The procedures used by the AMP staff members varied somewhat depending upon the particular prototype materials. However, certain procedures were of a more general character, and, therefore, were relevant to the work of all staff members. A brief description of the more general procedures will now be set forth.

Determining Major Design Work

After the AMP staff decided to use selected aspects of curriculum rather than a two-year curriculum as a focus for design, criteria for selecting these aspects were developed. Among the criteria which were made explicit and which helped guide selection were the following: (1) the centrality or significance of a given aspect of curriculum to the mission of education and administration; (2) general applicability of the aspect to a variety of administrative positions; (3) the availability of explanatory content, research, and strategies for doing design work; (4) weakness of the particular aspect in curricula as shown by research evidence on preparatory programs; and (5) potential for multi-media presentation.

Among the substantive areas considered as guides for design were the following: change and innovation; decision making; morale; research; instruction; interracial problems; schedule-building; professional negotiations; communications; economics; systems analysis; and media and technology. After considerable discussion and examination, concepts related to the following substantive areas were chosen to guide developmental work in AMP: the change process in organizations, systems analysis, and professional negotiations.

Surveys and Analyses of Existing Media and Materials

Extensive surveys of existing materials were undertaken to "map" the status quo and to achieve a better basis for projecting needed new materials. This work resulted in two publications. One of the publications included a 106-page listing, analysis, and synopsis of the 221 available written case studies as these were identified up to March, 1965.(5) Also made available with each publication was a set of 37 punched IBM cards which contained information on the various cases and which enabled professors to locate quickly and efficiently those with the characteristics they desired. Information could be obtained through the retrieval system on the following aspects of case studies: length, author, title, source, date of publication, locale, administrative role enacted, major administrative tasks performed, and concepts which could be used in discussing the cases.

A second publication made available contained organized information on the films, filmstrips, slide sets, disc recordings, audio-tape recordings, programmed material sets, overhead projection transparencies sets, simulation devices, and other media used by professors in preparatory programs.(6) On the basis of questionnaire data obtained from professors of educational administration, 319 different audio-visual devices were identified and classified. Information was provided on each of the following items as they relate to the audio-visual devices in use: title, source of the audio-visual material, and a classification of the device by its user in relation to a general scheme provided in the questionnaire.

Intensive Study of Relevant Literature

After the areas of change, systems analysis, and professional negotiations were chosen for design work, and while one staff member proceeded with a survey and analysis of existing materials, intensive study of relevant literature was undertaken by other staff members. Hundreds of references were read by the staff on the change process in organizations, systems analysis, and professional negotiations. A major purpose of this widespread reading was to develop a conceptual framework for advancing design work. In addition to studying the literature, staff members obtained assistance from experts through interviews and special consultant help.

While study proceeded to achieve conceptualizations basic to the design of materials, intensive studies of specific media and materials were also being made. Management games in the field of business administration were studied, for example, as were case incidents and cases. Much time was devoted to a careful investigation of the emergent medium of computer programs. Considerable work was devoted to simulation and to an intensive study of the "Jefferson Township" simulated materials. Generalizations were developed from these various studies. In the study of the Jefferson Township simulation, for example, conclusions were arrived at about the strength and limitations of these materials. The staff concluded that this example of simulation: (1) represented a standard testing-learning-teaching situation which could be used flexibly; (2) encouraged an emphasis on the teaching and studying of theory in relation to behavior which approached, but was not equal, to on-the-job actions; (3) produced behavioral data relevant to instruction as contrasted with perceptions of behavior; and (4) provided opportunities for practicing and prospective administrators to study their own patterns of behavior. Study of the materials also made clear some of their limitations: lack of precise comparability between and among responses of students, and lack of a system for modifying future problem situations through accumulated feedback.

Initial Design of Prototype Materials

Having studied certain substantive content related to educational administration and having examined potential media within which content might be organized and through which it might be communicated, the staff then made decisions about the most promising media available to achieve their purposes. This led to decisions to use computer programming supplemented by certain audio-visual media for systems analysis concepts, a non-computer management game for professional negotiations concepts, and the overhead projector supplemented by written media for organizational change concepts.

Another question which had to be faced by the staff was how instructional materials design could help bring about fruitful relationships between concepts and "reality oriented" situations in instructional situations. From a reading of the chapters which follow, it will be evident that concepts in each area of development had a very substantial influence on shaping the nature of the materials which were developed. It will also be evident that included in the prototype materials themselves are conceptual resources in the form of bibliographies, for example, which are specifically related to the substance (e.g., professional negotiations) of the "reality oriented" administrative situations represented in the prototypes developed. This would be particularly true with regard to the prototype materials on organizational change and on professional negotiations.

With regard to the prototype materials involving computer simulations, concepts related to certain technical problems, as well as system concepts, gave shape to the prototypes created. Technical problems related to such matters as the "language barrier" between man and computers, inadequate classification systems for storing data resulting from man-machine interaction vis-a-vis problems simulated, and the programming of needed information pertinent to the problems simulated. Thus, in the development of the prototype materials, a number of inventions related to a variety of problems were required and a larger gestalt encompassing the various solutions had to be achieved.

Obtaining Expert Opinion on the Prototype Materials

A major source of feedback was achieved in three dissemination seminars co-sponsored by UCEA and the University of Pennsylvania, the University of Chicago, and the University of Utah. At these seminars professors of educational administration viewed and learned about the prototype materials produced, examined the rationales underlying them, assessed their potential for affecting preparatory programs for educational administrators, and explored possibilities for developing extensions of the materials.

Another kind of critical feedback on the prototype instructional materials was gained through the opinions of specialists in areas where developments were achieved. For example, the management game on professional negotiations was examined by experts in labor relations in universities and by personnel experienced in providing consultant help to those involved in professional negotiations. In addition, all of the prototype materials developed were "tested" informally with graduate students of educational administration and, in some cases, with practicing educational administrators. On the basis of the expert opinion obtained from the various personnel involved, conclusions were reached with regard to needed revisions or refinements in the prototype materials, and these were executed by staff members.

OUTCOMES OF THE PROJECT

The major outcomes of AMP are described in the chapters to follow. In Chapter Two, John Horvat describes in detail a management bargaining game in the area of professional negotiations. The game has three different forms which can be adapted to short, intermediate, and longer time periods. Supplementary materials are provided to assist instructors and students using the game.

Chapter Three by Loren Downey describes materials and processes developed in the area of planned change. The description includes a depiction of the developmental process engaged in and examples of the prototype materials developed. Prototype materials are provided in relation to three dimensions of planned change.

In the fourth chapter, Paul Cullinan and Robert Ruderman describe two prototype computer-based simulations of administrative problems. Details are provided on the content of the simulations and on the different aspects of their development. Information on preliminary uses of the simulations with professors and graduate students is also included.

The Project has also produced a number of publications. The publications by J. J. Horvat et al on a case information and storage system (7) and the survey by John Horvat on media available for use in educational administration (8) have already been noted. Loren Downey's Planned Change: A Selected Bibliography has also recently been made available.(9) Finally, Charles E. Merrill Books, Inc., has published the prototype materials developed by John Horvat in the area of professional negotiations.(10)

In addition to publications and prototype materials, AMP has also produced specifications for the further development of materials. In addition, a number of implications concerning the development of materials to improve the preparation of educational administrators generally are elaborated. The specifications for the further development of materials and implications concerning the development process are both set forth in Chapter V.

FOOTNOTES

(1) See The University Council for Educational Administration, Resource Materials for Use in Simulated School Workshops, (Columbus, Ohio, 1965).

(2) For a more detailed treatment of the theory-practice problem with regard to the use of cases in business, educational, and government administration see Jack Culbertson, "Case-Method Teaching" in Jack Culbertson, Paul Jacobson and Theodore Reller. Administrative Relationships: A Case Book, (Englewood Cliffs, N. J., Prentice Hall, Inc., 1960).

(3) See Jack Culbertson, "Case Preparation" in Jack Culbertson, Paul Jacobson and Theodore Reller. Administrative Relationships: A Case Book, (Englewood Cliffs, N. J., Prentice Hall, Inc., 1960).

(4) Daniel Griffiths, John Hemphill and Norman Frederiksen. Administrative Performances and Personality, (New York: Bureau of Publications, Teachers College, Columbia University, 1963).

(5) J. J. Horvat, E. M. Bridges, and G. E. Sroufe. Case Studies in Educational Administration: An Information Storage and Retrieval System, (Columbus, Ohio: The University Council for Educational Administration, 1965). For a more extended description of the information storage and retrieval system, see Appendix A in this report.

(6) For an extended description of the data obtained from the questionnaire, see John Horvat. An Index of Media for Use in Instruction in Educational Administration, (Columbus, Ohio: The University Council for Educational Administration, 1966). For summary of report, see Appendix B in the present report.

(7) J. J. Horvat, E. M. Bridges, and G. E. Sroufe. op. cit.

(8) John Horvat. op. cit.

(9) Loren Downey. Planned Change: A Selected Bibliography, (Columbus, Ohio: The University Council for Educational Administration, 1968).

(10) John Horvat. Professional Negotiations: A Bargaining Game, (Columbus, Ohio: Charles E. Merrill Books, Inc., 1968).

CHAPTER TWO

The Development of Prototype Materials in the Area of Professional Negotiations in Education

by

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The need for instructional materials in the area of professional negotiations cannot be questioned. It is obvious that the trend toward organization and/or unionization of public school employees is growing rapidly. Moscow (1) reports that in 1965-66 more than one-quarter of the nation's teachers were covered by collective negotiation agreements of one kind or another -- this number reflects an increase of 25 per cent from the 1964-65 school year. Further, in 1965 alone, bills which sought to legally require local school boards to negotiate with teacher representatives were introduced in the legislatures of fifteen states and were passed in California, Connecticut, Michigan, Oregon, and Washington (2). Since 1965 a number of additional states have legislated either mandatory or permissive negotiations laws for public servants. It is clear, then, that increasing numbers of school districts throughout the United States are adopting formal negotiation procedures for the resolution of conflict and disagreement between teachers and boards of education, and that some form of collective negotiation procedures will be used extensively in future years to determine salaries and working conditions for public-school employees.

The weakness of existing preparation programs in the area of professional negotiations in most universities needs little documentation. The reason for this weakness is fairly easy to discover. Quite simply, until 1960 or '61 there was little need for programs in educational administration to be concerned with the area of professional negotiations in education -- for there were very few school districts in which such relationships existed. However, as early as 1962, Smith and McLaughlin (3) expressed concern that the nation's universities were neglecting the area of employee relations to public employment.

The development of formal non-unilateral relationships between representatives of boards of education and teachers' groups has progressed so rapidly that theory, research, and programs in educational administration have not been able to keep pace with the need for knowledge and instruction in this area. As Wildman and Perry (4) have noted:

> Theory and research in educational administration has not hitherto been much concerned with the problems of institutionalized or formalized group conflict within the school organization.

It can be stated without fear of contradiction that there is a knowledge and training gap in the area of professional negotiations in education, a gap, moreover, which is felt both by the practitioner of school administration and by his mentors at the university level. As one professor who assisted in field trials of the present materials noted, "One emerges (from use of the materials) with a sense that an administrator naive about (the negotiations processes) works untutored only at his peril." (5)

There is also no question that the numbers of administrators, board members, and teachers engaged in some type of formalized procedures to resolve their differences and to regulate the norms and conditions of employment are increasing. In many cases formal, non-unilateral, negotiation between boards of education and teacher representatives is a revolutionary break with past practice and tradition. The often asked question of whether this break with past practice is inevitable and/or desirable may well be a moot issue. The facts tend to indicate that this break is being made in many places and that it will continue to be made in others, whether or not it is inevitable or desirable. A more appropriate question or concern for educators is that of how to deal with the new problems which are created by the changing relationships between boards, administrators, and teachers. Failure to deal with such problems in a rational and constructive manner will be very detrimental to the achievement of the mission of education.

It is hoped, therefore, that the AMP materials developed in the area of professional negotiations will enable administrators and others to enter into this new relationship, when and where it exists, in such a way that the products and outcomes from the relationship provide maximum benefit (or at least minimum disruption) to the parties in the relationship and to the students and client public being served.

One other important facet of the need for understanding in the area of professional negotiations should be mentioned. Change in education, whether planned or unplanned, is a major concern of most educators. Change is certainly a vital element in the attainment of the goals of education, and the process of professional negotiations has a tremendous potential for causing change to occur. Formal negotiation sessions are expected, by participants and observers alike, to bring about changes. These changes may be minor or major good or bad, personnel oriented or related to major revisions in curriculum, instruction, and total program. But, no matter what the nature of the changes, it must be recognized that professional negotiations meetings are, in effect, a formal, structured arena in which change will almost always occur. When this is recognized, the relevance of training in negotiations theory and process to the practice of education becomes apparent. There is, in other words, a substantial difference between learning about administration and learning to administer. One can learn about administration through lectures, textbooks, and related media; however, to learn administrative behavior, one must actively practice it in situations where relevant skills and cognitive insights can be developed and tried.

It will be shown, in later sections of this chapter, that the materials developed in this phase of the AMP include both items for the study of professional negotiations and provisions for student participation in face-to-face negotiations situations. These provisions include active participation on the part of students in reality oriented negotiations situations which are to be simulated by use of the materials.

The reality oriented simulation materials described in the pages to follow offer many possibilities for developing and using media in instructional situations. Specifications presented within the materials illustrate some of these possibilities. These specifications, and, indeed, the materials as a whole, are intended to be suggestive rather than prescriptive. As such, they provide wide latitude for variation in the basic design of the materials. Clearly, many additional or different media in the various phases of the instructional sequence could be developed and presented.

When the considerable literature and research relating to the collective bargaining process in private employment, and the smaller body of literature and research on negotiations in public employment, is examined, one finds that in both cases, it is literature and research of an institutional and/or descriptive sort. Research on collective bargaining and negotiation relationships has tended to be fragmented, with much of the work comprised of essentially descriptive accounts which lack analytical focus (6).

The processes of locating substantive data and of selecting and including bibliographical references for the development of the materials were limited by the paucity of available research reports on professional negotiation in education. Although the study of group conflict and group relationships in the industrial relations, union-management field has been extensive, and a large body of literature and research exists, the precise relationship of this work to education is not clear. Some of the existing research and literature may be helpful in the study of board-administrator-teacher relationships in the public education setting. The more directly relevant literature and research on the conflicts and relationships between employers and employees in educational settings, while on the increase, is still relatively meager.

RATIONALE FOR THE DEVELOPMENT OF THE MATERIALS

Two basic assumptions were made as the development of instructional materials in the area of professional negotiations began:

1. That students of professional negotiations will need background knowledge about the substantive aspects of the labor movement, strategies of bargaining, issues in personnel relations in education, legal aspects of formal negotiations, and so on. In other words, they will need to learn about professional negotiations.
2. That students of professional negotiations will need to understand and experience the behaviors, strategies, tactics, pressures, and constraints which normally occur within bargaining situations. In other words, they will need to gain experience in the actual process of negotiating.

Quite simply, these two assumptions indicate a recognition of the need for training in both the "theory-knowledge" and the "practice-experiential" aspects of negotiations. They recognize the need to relate study and practice in one set of materials. They recognize the need of students to learn about professional negotiations in education and to learn to negotiate. (One should not conclude from this statement that use of the materials will develop expert, or even adequate, negotiators. However, experience with the materials should provide students with the essential and basic skills and understandings from which adequate and/or expert negotiating ability can be developed.)

With these two assumptions as a basis for the development of materials, the developmental process proceeded on two fronts. One front involved the development of reality-oriented, active-participation-on-the-part-of-students, simulation materials in professional negotiations. This body of materials became "The Negotiations Game." The second front involved the development of materials and materials specifications which can be used to aid students in gaining knowledge about the substantive aspects of the entire negotiations and profession relations area. This body of materials became the "Supplementary Teaching Materials." Thus, the total package of materials consists of two interrelated parts -- these parts can be used independently, but the design intent was that they should be used to complement each other.

The rationale behind the development of the gaming materials is generally that which supports the use of simulation and gaming in instruction in other fields. For example, the military, business, and other enterprises have found that games are useful for training personnel when it is impossible for them to participate in the actual situation, and also where it would be very expensive to provide on-the-job experience. Games can be useful in administrative training programs in education in general, and in training in professional negotiations in particular, for the same reasons.

Games are one form of simulation. They usually consist of a more-or-less controlled situation in which a team competes against intelligent adversaries and/or an environment to attain certain pre-determined objectives. The environment and the controlling roles are designed to represent a real-world situation as nearly as possible.

In any game, the players usually must contend with several interacting variables, some of which are under their control. Usually, as the game becomes less "formal" (i.e., as it moves from a zero-sum game with a known payoff matrix to a non-zero-sum, variable payoff game) more variables exist and the players have less control over these variables.

In a game there are relationships between decisions made by players and the results or outcomes of the game. In the Negotiations Game the exact nature of these relationships is not fully known by the players (nor are they known by those who are conducting the game), but must be inferred from observation as the gaming situation unfolds. The game is dynamic in that the behaviors and decisions made at one period influence future behaviors, decisions, and conditions within the game.

Although the Negotiations Game does not model any real situation in every detail, it was designed to have enough of the aspects of real-world situations to enable players to appreciate the complexities and interrelationships found in actual negotiation situations.

The major advantage, from an instructional point of view, to be derived from the use of the gaming materials is that the student-players are forced to observe the effects of their behaviors and decisions over time. In other words, students are required to confront their own behavior. It is believed that such confrontations 1) cause students to examine their reasons for acting as they did, 2) cause students to try to discover the variables, and the source of these variables, which seemed to impinge upon them as they acted in the gaming situation, 3) cause students to feel a need for concepts which will help explain the "why" of their behavior and of the situation as it evolves, and 4) create a strong feeling of dissatisfaction with their knowledge of the situation in which they must act and with their behavior within the situation -- such dissatisfaction should lead students toward attempts to learn to understand their behaviors and to change them.

Other reasons for and advantages of using the gaming context in the materials on professional negotiations are:

1. The game may illustrate the critically important facts in a negotiations situation more effectively than any other teaching method.
2. The game should give the participant an opportunity to gain insight into the area of negotiations. (In actual practice administrative problems are frequently too complex to permit the use of intuition, experience, or even analytical tools to lead to an understanding of the overall situation. There is no guarantee that games will lead to insight, of course.)
3. Playing the negotiation game forces the player's attention on establishing policies or strategies and on longer range planning. On-the-job experience tends to emphasize the "putting out fires" problems and the young administrator very rarely gets a chance to participate in long-range planning. The dynamic game gives him this opportunity.
4. The participant can gain practice in the use of decision-assisting tools. Therefore, he should be able to make better use of financial statements, and other kinds of information and devices which bear on the situation at hand. There is presently no other educational method which gives the student so much practice in decision-making as does the dynamic game.
5. There is no question that players tend to become highly involved when participating in a game situation. They often act as if the game represents a real situation and that the objectives of the game are real-life objectives. As a result of this involvement, the participants should learn more from the game than from the usual static case study in which the student tends to look on the situation as a one-time decision.
6. In game situations a large number of interacting variables must be simultaneously accounted for by the player. This is highly realistic and gives the player a better appreciation for the difficulty of making decisions in administrative situations.

7. Because time is generally compressed, the player can make as many decisions in a game in a few hours as he would make in an operating school system in several years. There is no measure yet as to the direct value of this kind of experience but it should be considerable. (7)

Use of the Negotiations Game can have several advantages for the instructor as well as for the players. Some of these benefits are:

1. The instructor himself gains an insight into the problem. It has been found that the process of creating a game or of modifying it is especially fruitful for developing insights into the structure of the actual situations that the game is designed to simulate.

2. The instructor has great flexibility in making the game illustrate a specific point; it is quite easy to revise a game. In the classical case study it is often difficult to alter a given situation in a way that permits the instructor to illustrate desired points.

3. The costs of training through the use of games should be much lower compared to on-the-job or the "sink-or-swim" type of training.

4. Playing an administrative game usually proves to be an enjoyable experience for the participants. Instructors usually have little difficulty in holding a group's attention and interest for relatively long periods of time. (8)

The rationale for the development of the supplementary teaching materials assumes that students of professional negotiations need background information on the issues, law, history, etc., of negotiations. It is felt that the most efficient method for presenting such information is to collect and present it in a straightforward manner using textbooks, articles, bibliographies, and other appropriate media which are available or can be produced. The supplementary teaching materials provide some of this needed background of information, but of course, professors using the materials can and should introduce their own materials in order to shape the background received by students to fit local circumstances, events, and problems, and to shape the course of instruction to meet the professor's intent.

A DETAILED DESCRIPTIVE OUTLINE OF "THE NEGOTIATIONS GAME"

The following represents a description of the "Game" materials in outline form.

The Negotiations Game

A. General Description: The basic gaming materials consist of

1. A forty-item labor-management attitude opinionnaire with scoring guide.
2. Detailed suggestions for setting up negotiating teams and groups by use of the opinionnaire results.
3. Background information regarding a hypothetical school system, including
    - a. General information regarding the community and the Teachers' organizations.
    - b. General statistics with regard to pupil enrollment and staff size.
    - c. Educational attainment of professional staff members.
    - d. Class periods time schedule.
    - e. Current salary schedule.
    - f. State Department of Education survey data with regard to practices in some of the other school districts of the state.
    - g. Information on school finances.
    - h. Legal framework.

4. A series of "Issue for Bargaining" statements which describe the Teachers' position and the Board's position on the issue, and which provide information with regard to the dollar value or cost of the demand if it should be granted.

5. Guideline statements for the negotiators -- confidential memoranda to each side.

6. Instructions and suggestions for conducting the gaming sessions.

7. A set of "Final Terms of the Agreement" Forms, one for each "Issue for Bargaining." These forms are to be used in the negotiation sessions to indicate and record the terms of the agreement.

8. Guidelines for rating the final contract settlement -- to be used in rating the agreements worked out in the negotiations sessions.

9. A fourteen item "Post-Session Questionnaire" the results of which are to be used in the process of assessing and comparing the outcomes of negotiations.

10. Materials and instructions for the use of a simplified form of Bales (9) method of interaction analysis. These materials can be used to help negotiators identify and perhaps understand the nature of their action and inter-action within the negotiations setting.

B. Suggestions for Use

1. Three forms of the game

   a. Short Form: for classroom use -- requires 2-4 hours for negotiations sessions only -- total minimum time required for use is approximately eight hours.

   b. Intermediate Form: for 2-4 day workshops or seminars.

   c. Long Form: for 2-4 week workshops, or full quarter or semester courses in professional negotiations.

2. Structure of negotiating teams and groups

   a. The number of negotiators per team.

   b. Simple role-playing assignments.

   c. Prompted role playing.

   d. Structured role-playing assignments, i.e., the creation of "natural" negotiating teams through the use of the opinionnaire results.

   e. Use of negotiators who are not administrators to represent the teachers' organization in the negotiations.

3. The role of the superintendent in negotiations

   a. As a negotiator (basic game role).

   b. As a mediator-information source (variation of the basic game role).

4. Vary research possibilities (some examples)

   a. Very attitude orientations of team members in different negotiating groups to see if (and how) attitudes have a significant effect upon outcomes -- including behavioral outcomes.

   b. Vary the issues to be negotiated by different negotiating groups to see what effect various issues have on negotiating behaviors.

   c. Vary pre-negotiation instructions to various negotiating teams to see what effect different "mind sets" have upon behaviors and outcomes.

   d. Make a single major change in the background situation faced by different negotiating groups (e.g., in one situation the Board president is a high official in the AFL-CIO) to see if such changes have any major effect upon behaviors and outcomes.

C. The Gaming Materials (Details)

1. Letter of appointment as a negotiator

   a. To the Board Team.

   b. To the Teachers' Association Team.

2. Background information (short and intermediate forms of the game)

   a. General information - demographic, tax base, growth of teachers' association.

   b. School system size and enrollment.

   c. Educational attainment of staff.

   d. Class schedule.

   e. Salary schedule
   f. Statistics on four other districts and state-wide averages.
   g. Detailed financial data.
   h. Statement of state law.

3. Background information (Long form of game)
   a. A set of background materials for the long form is provided.
   b. Madison materials could be used.(10)
   c. A school district survey which had been conducted by the professor or his department could be used as background.

4. Instructions and suggestions for conducting the negotiation sessions
   a. Ground rules.
   b. Time limits.
   c. Tape recording of all sessions for use in post-session analyses.

5. Issues for negotiation (Include position statements from each side and a statement of past practice)
   a. Short form issues
      i. Recognition of Association as exclusive representative of teachers.
      ii. Dues check off.
      iii. Salary increase.
      iv. Increased hospital and medical benefits.
      v. Duty-free lunch periods.
      vi. Free preparation periods.
      vii. Class size limitations.

- b. Intermediate form issues
    - i. All short form issues (above).
    - ii. Extra pay for extra duties.
    - iii. Revision of salary schedule to ratio type.
    - iv. Transfer policy.
    - v. Sabbatical leaves.
- c. Long form issues
    - i. All short and intermediate form issues (above).
    - ii. Grievance procedure.
    - iii. Sick-leave policy.
    - iv. Salary credit for prior service.
    - v. Preliminary disciplinary or discharge procedures.
    - vi. In-service education policies.
    - vii. Level of professional preparation requirements.
    - viii. Union meeting-policies.
    - ix. Consultation with Superintendent.
    - x. Teacher evaluation procedures.
- d. Addition of other issues by professors as desired.

6. Confidential memoranda to negotiators
    - a. From Board to Board negotiators
        - i. Strategy statements.
        - ii. "Good Faith" bargaining statements.
    - b. From Teachers' Association to Teachers' negotiators
        - i. Strategy statements.
        - ii. "Good Faith" bargaining rules.

7. "Final Terms of the Agreement" Forms; Taken together, these make up the basis for the contract.

8. "Post-session Questionnaire": A fourteen item questionnaire which attempts to ascertain

   a. The realism of the negotiations situation from the participants' points of view.

   b. The satisfaction of negotiators with

      i. The substantive outcomes of negotiations.

      ii. Behaviors and processes within the negotiation sessions.

   c. The degree of residual disagreement held by negotiators.

   d. The issues which were seen as most, and least, important by negotiators.

   e. How the game might be improved.

D. Post-Session Materials

1. Rating-comparing the substantive outcomes from negotiations using (a) "Final Terms of the Agreement" Forms, and (b) Rating Scales to determine

   a. Time required to arrive at agreement.

   b. Cost of the agreement to the school district.

   c. Amount of change from original positions.

   d. "Fairness" of the Final agreement -- based upon a somewhat arbitrary "going rate" standard.

2. Rating-comparing participant satisfaction with outcomes using the results of the "Post-Session Questionnaire" to determine

   a. Satisfaction with substantive outcomes.

   b. Satisfaction with processes and behaviors within the sessions.

   c. Amount of residual disagreement.

   d. "Most" and "Least" important issues.

3. Rating-comparing-analyzing behavioral outcomes from the negotiation sessions using a modified form of Bales' Interaction Process Analysis (11), to analyze tapes of negotiation sessions
    a. Description of interaction categories.
    b. Categorization technique.
    c. Sample scoring protocol.
    d. Practice materials for developing skill in scoring interaction
        i. Practice transcription - ideal scoring given.
        ii. Practice tape recording - ideal scoring given.
    e. Methods and suggestions for the presentation of interaction analysis data.
    f. Methods for intensive analysis of interaction.

This completes the descriptive outline of "The Negotiations Game" materials. For further exemplification of these materials the reader is referred to the Game itself.

SUPPLEMENTARY INSTRUCTIONAL MATERIALS

Extensions and Variations of the Basic Game

Several suggestions and illustrations are provided for extending and varying the basic gaming materials. These ideas will be outlined here and the reader is invited to examine these suggestions in detail as they are presented in the Negotiations Game materials.

1. Development of formal contracts - The basic gaming materials do not require the negotiators to convert their agreement (positions indicated on the "Final Terms of the Agreement" forms) into a written, and formal, contract document. The process of converting agreements reached at the bargaining table into a written document is one of the more difficult

aspects of the negotiations process. It is suggested, within this portion of the materials, that it will be quite instructive to students if they are asked to reduce some or all of their bargaining table agreements into written, formal, contract language. If this is done, then a critique of the language and format of the contract can be produced and "weasel-worded" clauses, indistinct commitments, clearly illegal agreements, and unintended benefits to either of the contracting parties can be discovered and discussed. The students can be made to realize that contract language of the kind usually used by beginning negotiators inevitably leads to misunderstanding, arbitration, legal action, or other third party intervention.

2. Development of press releases - One of the problems which negotiators often face during, and after, formal negotiations sessions is that of describing the processes and outcomes of the sessions to the press. Therefore, it is suggested within the materials that students be asked to prepare such press releases. Several variations in the means of doing this are possible including: separate presentations in writing by each side, separate oral presentations by each side, joint presentations by each side, and presentations through interview with reporters. Such releases can be examined, after the fact, for veracity, diplomacy, possible repercussions, and so on.

3. Introduction of "crisis" situations - The situation may develop, especially in the longer forms of the game, wherein the negotiators become intransigent or otherwise phlegmatic in their discussions. It is helpful to have a mechanism for prodding the negotiators if and when this situation occurs. A number of crisis situation input devices, e.g., a

telephone call to one of the board-administration negotiators which provides him with "reliable" information about a possible strike by the system's teachers, are provided within the materials. Other such devices can be invented and used by the professor without a great deal of difficulty.

4. Impasse situations and fact-finding, mediation, and arbitration-impasse situations occur frequently in actual and simulated negotiations. Often no rules or statutes exist to provide guidelines for dealing with such situations. The materials provide a description of several methods for handling impasse situations and suggestions are presented for involving students in simulated impasse resolution activities.

5. Other suggestions provided for users of the materials - Although no tangible materials are provided within the materials for implementing them, suggestions for variations and extensions of the basic gaming materials by professors are suggested in the following areas:

a. Variation of background and other data to the parties to the negotiations ;

b. Development of board-administration demands for introduction into the negotiations in second- and subsequent-year negotiations sessions;

c. Involvement of students from school finance and school law courses in the negotiations game;

d. The utilization of veteran negotiators as consultants during the use of the negotiations materials.

Glossary and Annotated Bibliography

A glossary and an annotated bibliography are provided within the materials with the hope that they will be of some assistance to professors and students alike in dealing with the substantive aspects of the professional negotiations process. The glossary provides general definitions of all the specialized terms used within the materials. The annotated bibliography provides about 300 references which are divided into the following categories:

1. References on industrial negotiations and labor-management relations
2. References on professional negotiations in education
3. References on the legal aspects of professional negotiations
4. References on small group interaction, behavior, and theory which have relevance to the process of negotiations
5. References on games and game theory
6. References on the issues for negotiation

NEEDED FURTHER DEVELOPMENT OF THE SUPPLEMENTARY INSTRUCTIONAL MATERIALS

Several areas appear to present opportunities for the development of "supplementary" instructional materials in the area of professional negotiations. The term "supplementary" is used to suggest that the materials will provide maximum benefit when used in conjunction with the Negotiations Game materials. However, some of the suggestions which follow, if implemented, will produce materials which can be used independently and without reference to the Game.

1. A series of illustrative tapes and/or films should be developed which provide examples of "critical incidents" or "classical" behaviors in negotiations sessions. These tapes or films could be used with students to demonstrate (and provide insights into and understanding of) the recurring kinds of behaviors which occur in small, high involvement, decision-making groups.

Student analyses of the tape recordings of the negotiations sessions, as provided for in the Negotiations Game materials, will develop a fledgling understanding of, and a strong desire to better understand, the group dynamics involved in negotiations. But the opportunity for students to witness and analyze the behavior of persons not in their immediate classroom group should provide more objective and better understanding of important aspects of group behavior and dynamics. This is especially the case if experts in the group dynamics field can be recruited to help select the appropriate illustrative incidents, and, if these experts provide written or taped suggestions for the analysis of each incident.

Such a package of supplementary materials should contain the following materials and could be developed in the following way.

> A series of tapes and/or films depicting important examples of group behaviors and dynamics in a professional negotiations setting should be developed. The incidents to be put on tape or film should be selected, by experts in human relations or group dynamics, for their illustrative value. That is, the incidents selected should be (1) those which best illustrate the most common and critical kinds of behaviors which occur in such group settings, and (2) those which best relate behaviors to the relevant behavioral science-group dynamics literature, theory, and knowledge. A few examples of the kinds of incidents which might be taped or filmed are:
>
> 1. The "fight-flight" syndrome. That is the tendency of decision-making groups to argue a point, become angry, then back away from the point and enter into irrelevant interaction.
> 2. Examples of successful and frustrated attempts to assume leadership of the negotiating group.
> 3. Illustrations of the stages of development of intergroup relations in small groups. For example, Schutz's (12) theory (which states that every interpersonal relationship begins with inclusion behavior, is followed by control behavior, and finally reaches affection behavior; and that when the relationship nears its end, this process is reversed) could be illustrated.

4. Various, clear-cut styles of behavior, and the ultimate results of such behavior on the outcome of negotiations could be partially, if not fully illustrated.

5. Productive and non-productive disagreement and conflict situations (13) could be shown.

Once the Negotiations Game has been used in the field by 20 to 30 "negotiating teams" a bank of tapes of these negotiation sessions will be available. Group dynamics experts could be given this bank of tapes and from it they could select incidents which were most critical, common, and which have the greatest potential for instruction in group dynamics and behavior. Once these incidents are selected the tapes from the actual negotiations session could be reproduced (if the quality of the tapes and the interaction on the tapes is good enough), or the behaviors on the tapes could be transcribed, revised, and produced on tape or film by professional actors.

A series of such tapes or films would be most useful in helping students understand behaviors in negotiations sessions in particular and in small decision-making groups in general.

In addition to these tapes or films, the behavioral science consultants should prepare written "guidelines for the use of tapes and films." These guidelines would serve as a sort of teacher's guide to the materials and could be used by the professor or by the students themselves. The guidelines should describe in detail the meaning of the incidents depicted on tape or film and should provide references to the literature for further study of concepts involved. With such a combination of materials, both the professor who has a strong background in the behavioral sciences, and the professor who does not, could offer students an opportunity to delve into the factors of human behavior which are an exceedingly critical aspect of the entire professional negotiations process.

There is a need for the development of a large amount of substantive teaching material relative to the area of professional negotiations. There is no means by which these needed materials can be described in detail since the entire area of professional negotiations suffers from a lack of focus and fixity. Valid generalizations about any aspect of negotiations in education are at this point elusive. About all that the professor of educational administration has had readily available for use in instruction in the area are the statutes of the states which deal with this question, and a few descriptive, experiential-reporting articles on the subject. There is little question that substantive materials need to be developed in at least the following four broad areas:

1. The process of bargaining and negotiating -- the "how" and "why" of negotiations.
2. The issues for negotiation -- what, if anything, is not negotiable and why are issues negotiable or not negotiable.
3. The legal aspects of negotiations.
4. The moral and professional aspects of negotiations.

DATA ON FIELD TRIAL AND DISSEMINATION ACTIVITIES

From July 1, 1966 through March 31, 1967, the Negotiations Game prototype materials were subjected to a number of field trials. Such trials were conducted by the writer and by Dr. Joseph M. Cronin of Harvard University. The results of these field trials were quite encouraging in that the materials were well received by students and demonstrated great promise for filling a gap in existing preparatory and in-service training programs for school administrators.

During the process of field trials a number of minor weaknesses were discovered within the materials, and several suggestions for improving and expanding the materials were made. These findings, together with suggestions provided by experts* in the areas of industrial relations and professional negotiations were incorporated into the first published edition of the materials.

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*Dr. Charles M. Rehmus, Co-director of the Institute for Labor and Industrial Relations, University of Michigan and Wayne State University and Dr. Eric G. Taylor, Canadian consultant in professional negotiations, Toronto, Canada.

During the months of April and May, 1967, the prototype negotiations materials were presented to approximately 50 professors of educational administration in three dissemination conferences held under the auspices of UCEA. In each of the conferences professors were given a detailed description of the materials, were shown the total package of materials, and were involved in actual use of and participation in the simulated negotiations game.

Further suggestions for improving and extending the materials were gleaned from these conferences, and these suggestions were also incorporated into the materials. The response of the conference participants was consistantly encouraging. Nearly all of the conference participants were able to discover ways in which the materials could be used within their administrative training programs. Many professors saw ways of, and expressed interest in, developing the materials further to extend their scope and utility. The encouragement of such further developmental efforts on the part of professors was, of course, one of the hoped for results of the production of the materials in the first place.

As a result of field trial and dissemination experiences with the materials, it seems quite safe to say that they meet a significant need in preparation programs for school administrators and that they form a firm basis for the further development of instructional materials and programs in this very important area of administrative concern.

FOOTNOTES

1. Michael Moscow, "Recent Legislation Affecting Collective Negotiations for Teachers," *Phi Delta Kappan*, 47 (Nov., 1965), p. 136.

2. *Ibid*.

3. R. A. Smith and D. B. McLaughlin, "Public Employment: A Neglected Area of Research and Training in Labor Relations," *Industrial and Labor Relations Review*, 16 (Oct., 1962), p. 31.

4. W. A. Wildman and C. R. Perry, "Group Conflict and School Organization," *Phi Delta Kappan*, 47 (Jan., 1966), p. 244.

5. Joseph M. Cronin, "Collective Negotiations and the Preparation of School Administrators," (Harvard University, May, 1966), Unpublished paper, mimeographed, p. 3.

6. For a detailed discussion of this point see C. M. Stevens, "Strategy and Collective Bargaining Relations," *Proceedings of the 13th Annual Meeting of the Industrial Relations Research Organization: 1960*, (Madison, Wisconsin: The Association, 1961), p. 122.

7. Adapted from J. R. Green and R. L. Sisson, *Dynamic Management Decision Games*, (New York: Wiley and Sons, 1959), p. 34.

8. *Ibid*.

9. R. F. Bales, *Interaction Process Analysis*. (Cambridge, Mass.: Addison-Wesley Publishing Co., 1950).

10. See the "Madison School District" simulation materials as developed by the University Council for Educational Administration, 29 West, Woodruff Avenue, Columbus, Ohio 43210.

11. Bales, *op. cit.*.

12. William C. Schutz, "The FIRO Theory of Interpersonal Behavior," Chapt. 10 in J. A. Culbertson and S. P. Hencley, (eds.) *Educational Research: New Perspectives*, (Danville, Illinois: The Interstate Printers and Publishers, Inc., 1963).

13. See the discussion of productive and dysfunctional conflict presented by Torrence In: E. P. Torrence, "Group Decision-Making and Disagreement, *Social Forces*, (1957) p. 317.

CHAPTER THREE

PROTOTYPE INSTRUCTIONAL MATERIALS AND PROCESSES FOR PREPARING ADMINISTRATIVE PERSONNEL TO UNDERSTAND AND COPE WITH PLANNED CHANGE

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Boston University

If one had to name the present era of education, the "Era of Change" would be a likely label, for no educational topic in the decade of the 60's has generated more book subjects, column inches, or conference themes. Although we cannot equate interest in change with actual changes, we can be quite certain that the popularity of the topic reflects the existence of a number of forces pressing for changes within school organizations. As one consequence, educational administrators are turning increasingly to professors of educational administration for knowledge about the processes of planned change through courses, consultations, conferences, and workshops. Moreover, the knowledge they seek is of the "how-to-do-it" variety, for they commonly perceive that the pressures they face will be relieved only through implementation of changes.

If professors of educational administration are to respond to this perceived need, they too will have to become concerned with the dynamic or implementation aspects of change. Synthesizing or developing the substantive knowledge necessary to provide practitioners with guidelines for bringing about change, while being a necessary step, will not be sufficient. Professors will also have to learn to utilize these guidelines themselves in instructional situations, for the ultimate translation of the guidelines into functional changes within school organizations is, to some extent, dependent upon the professor's success in first altering practicing and prospective administrators' concepts of change as well as their attitudes toward it. Contemporary forces, then, highlight the need for both professors and practitioners to become changers as well as to possess knowledge about the processes of planned change. Moreover, as long as practitioners and/or practitioners-to-be turn to professors of educational administration as one "means" of becoming changers, an important burden of action lies with the professors.

It is here that the major objectives of AMP were found to be consonant with the apparent demands of the situation described above. As noted in Chapter I, an important objective of AMP was to design prototype instructional materials to improve the instructional efforts of professors and, in turn, the practice of educational administration. Thus, assuming the substantive area of planned change to be a vital area in the preparation of practitioners, the writer set out to design instructional materials to facilitate the instructional efforts of professors as they worked with practitioner-students in aspects of curriculum dealing with planned change. It is this portion of the project -- its outcomes and the significant pieces of its process -- that will be reported in this chapter. The report will be presented in two sections. The first section will deal with the process of material development, and the second will introduce the products of the process.

THE PROCESS OF MATERIAL DEVELOPMENT

It should be noted in the beginning that the instructional materials that were designed pertinent to educational change, and the process that led to their peculiar form, departed significantly from traditional conceptions of instructional materials and instructional material development; thus, the importance of stressing the process prior to the descriptions of materials.

Since the writer initially approached the design of material on the change process in a very logical fashion, as seen traditionally, it may aid understanding if the early approaches to material design are described, the difficulties identified, and the emergent process modifications discussed. The initial activities were selected on the basis of a set of implicit assumptions that might best be described in this manner: if we know enough about planned change and can (with the help of new materials) transmit that knowledge to practitioner-students, they, in turn, will convert that knowledge into changed behaviors within their school organizations. Quite logically, then, efforts were directed toward the identification of explanatory concepts relevant to processes of planned change so the concepts could guide the subsequent design of instructional materials needed to "teach" the concepts.

Search for a Conceptual Framework

The first and major difficulty encountered was an inability to identify an integrated body of knowledge which would clearly explain change processes.

This obstacle forced a re-examination of project procedures and revealed an emphasis on content and content transmission at the expense of consideration of other elements of the instructional process. Consequently, a conceptual framework was identified to facilitate the examination of a range of major variables affecting the instructional endeavors of professors of educational administration. The effects of other variables besides concepts were assumed to have major significance for the development of materials that could be utilized by professors.

Search for a conceptual framework was guided by the assumption that the professor's ultimate objective is to promote behavioral changes in practitioner-students. Moreover, the means selected toward this end would inevitably be some form of influence, and the mechanism used most frequently to influence would be some form of communication. Therefore, a communication model was selected to identify the interrelated elements of the communications process utilized by professors as they attempt to influence (or change) the behavior of their students.

Another reason for the choice was the assumption that when change is viewed as the dynamic process of influencing individual and group behavior through communications, the model would facilitate analysis of any changer-changee (influencer-influencee) relationship, thus having utility for the change-oriented administrator (educational leader) as well as the innovative professor.

Utilization of the model to analyze the changer-changee relationship between professors of educational administration and practitioner-students led to: 1) a reassessment of the assumptions guiding procedures to achieve instructional materials on the change process; 2) an explication of a particular type of instructional materials; and 3) the development of the process and materials as introduced in the last part of this report. Since the model itself is representative of the materials to be proposed and is central to the process involved, it is important that the model be introduced before continuing the discussion.

The conceptual framework utilized was an adaptation of the communications model developed by Edward J. Robinson.(1) The modified model is depicted in Figure 1 as it describes the positive professor-student, influencer-influencee (changer-changee) relationship. In elemental form the professor endeavors to influence the student through conceptual content (messages) transmitted to the student through selected media. The dimensions of the instructional process are seen to follow the usual elements of communications theory, i.e., sender, message, media, and recipient. In Figure 1 these stages are labeled professor, content, materials, and student respectively.

Following Robinson, it was hypothesized that the professor's development of content would be preceded by a circular process (in essence a feedback process) composed of the three functions of decoding, assigning meaning, and encoding as illustrated in Figure 1. In less technical language and within the context of an instructional situation, this process can be regarded as planning, purpose-setting, and presentation (according to explication on page 49). For example, surveys of student needs or any other factor relevant to the teaching situation on the part of the professor are decoding activities; interpretation of the data and identification of instructional objectives are forms of assigning meaning; and the develop-

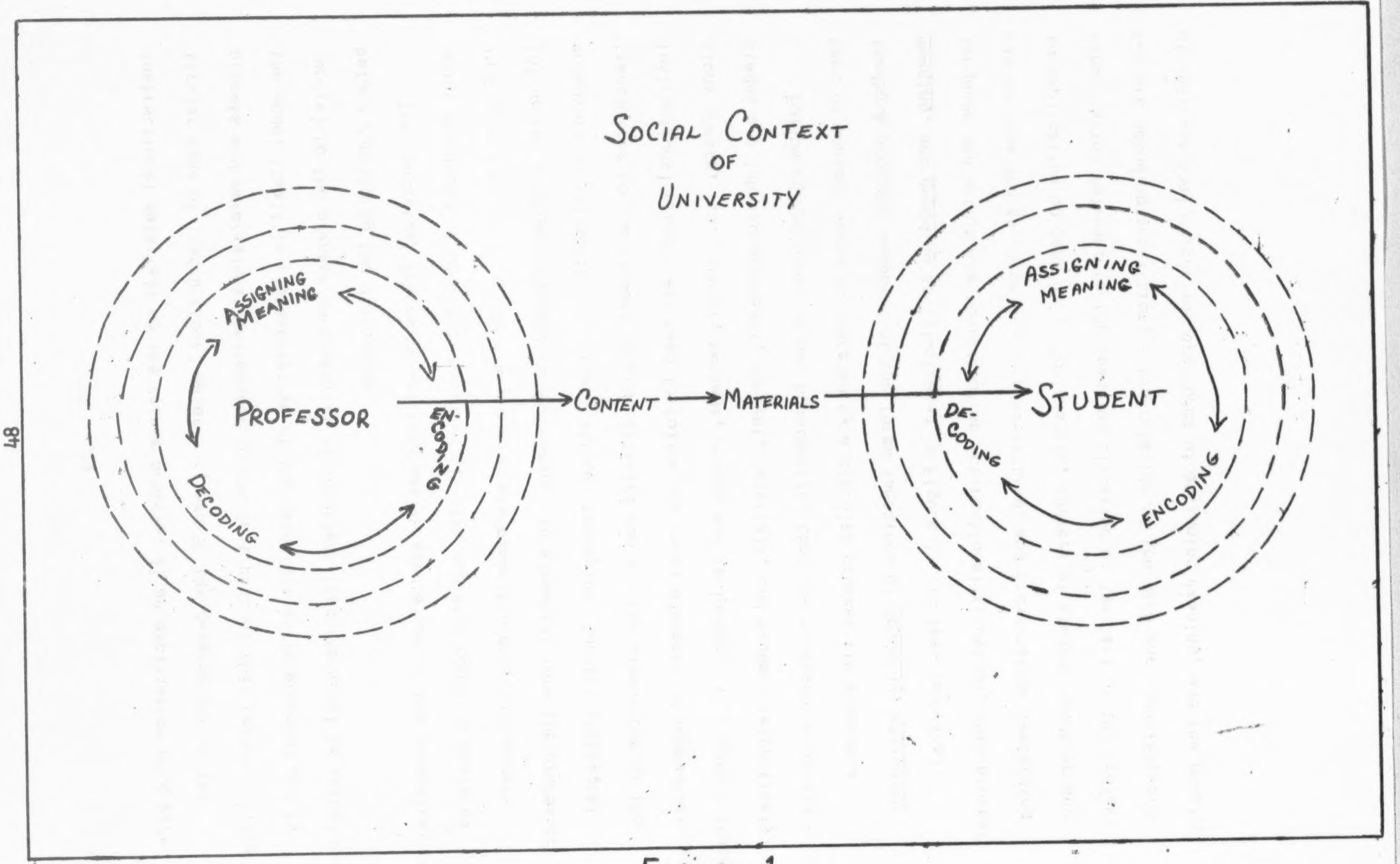
SOCIAL CONTEXT
OF
UNIVERSITY
ASSIGNING MEANING
PROFESSOR
EN-CODING
DECODING
CONTENT
MATERIALS
STUDENT
ASSIGNING MEANING
DE-CODING
ENCODING

FIGURE 1

ment and execution of an instructional plan consistent with the gathered and interpreted information is an example of encoding.

Explaining the model further, one could conceive of the instructional process as being described with the three functions of the circular process illustrated around the professor and student stages. At one level of analysis this is so, but AMP's purpose in relation to the design of materials on change was to facilitate analysis of the basic elements of the instructional process. By making assumptions about the essential nature of the elements of content and materials, they are included as separate stages in the model. Another reason for their inclusion is their centrality in any process of material development -- the prime concern of the AMP project.

The final stage of the model is the practitioner-student -- the intended target of instruction or influence attempts. As the model indicates, he too engages in the circular process of decoding, interpreting and encoding. But in his case the decoding activity is focused on the professor's message; the interpretation is basically a matter of each student determining the applicability of the perceived message; and the encoding is a process of intentional or unintentional feedback to the professor in the form of verbal and/or behavioral messages. Presumably, the messages received from the students become data for decoding on the part of the professor. Thus, for purposes of analysis, the total process can be seen as ending with feedback to the professor, but, in actuality, it is cyclical in nature.

To this point, we have identified and explained briefly the basic elements in the model. However, the model would not be complete without reflecting that the process takes place within social contexts containing factors which affect each separate stage. The rectangle, enclosing the process illustrated in Figure 1, allows for this by identifying the social structure of instructional situations (classroom, workshop, etc.) -- the social context assumed to be of major significance to developers of instructional materials for professors. And finally, the concentric circles drawn around the professor and student stages permit extension of the model by the insertion of specific factors affecting the behavior of professors and students.

Now that the model has been explicated, we can proceed to discuss the findings generated as each stage of the communication process was analyzed. Perhaps the major outcome of this analysis was the realization that the initial emphasis on content and content transmission was an approach much too simplistic to achieve the end objective of changed behavior.

The model revealed that the many forces impinging on the influencer and the influencee have great potential effect on the selection, use, and reception of knowledge content and the means for transmitting it. Such forces quite obviously can constrain influencers from utilizing "best knowledge" although they may fully accept it rationally. Thus, identification and examination of constraining forces at work on professors' and students' decision-making processes were judged essential and of first-order priority.

Some Constraints Affecting Materials Development and Use

The subsequent analysis of constraints was delimited in scope to those more pervasive in presence, rather than to those more individually and situationally oriented. Even with the delimitation the list was extensive and the writer was forced to arbitrarily suspend analysis, for it was found to be seemingly without end.

The major constraints identified through the limited analysis were classified into three categories. These were termed content, personal, and contextual. Each of the areas will be described below in a relatively brief manner, for our purpose is not to detail as many constraints as possible, but rather to demonstrate the utility of a constraint analysis prior to influence attempts or development of means to influence.

Content Constraints. As mentioned earlier, staff members were unable to identify an integrated body of knowledge-content deemed adequate to guide social change within educational organizations. The voluminous literature relevant to the subject of planned social change was found to lie in several discrete disciplines, and represented the research efforts of scholars who set aside confounding variables and studied in depth variables especially pertinent to their own disciplines.

This approach to research and theory building left critical factors unexamined and relationships between and among disciplines relatively neglected. Moreover, the resultant state of knowledge offered little help to practitioners who are left by default to thread the discrete concepts into functional guidelines to direct change attempts in a work situation where confounding variables cannot be set aside.

Another content dilemma is created by the applied nature of AMP's end objective -- to facilitate bringing about social change rather than just studying it. Here once again the existing pattern of knowledge development is found to be inadequate, for present theories of social change, in the words of Warren Bennis, are " . . . silent on matters of directing and implementing change . . . . They are theories suitable only for observers of social change, not theories for participants in, or practitioners of, social change."(2)

Thus, when we concern ourselves with the dynamic aspects of bringing about social change, we face severe content constraints. Robert Chin, in a paper discussing this dilemma, makes a distinction between change and changing, and points out the need to develop theories of changing.(3) Unfortunately, Chin's appeal is a muted call in academe, and integrating concepts of changing are not presently forthcoming.

Personal Constraints. Analysis of selected forces influencing the professor and student elements in the model revealed constraints created by the perceptions, attitudes, beliefs, and cognitive knowledge of professors and students. These may be best described by classifying them into categories based on origins, i.e., those acquired through socialization processes and those acquired through formal educational preparation.

Considering role learning in educational organizations as basically a socialization process, analysis reveals that all role incumbents hold sequential roles. Designated roles succeed one another along a career pattern. In the case at hand, the sequence starts with the student role in primary school and progresses through the professional roles of teacher, administrator, and professor of educational administration. This becomes significant because of the common cultural expectation for all role occupants in school organizations to exhibit universalistic qualities which are ascribed by the wider society.(4) Thus, we can assume that both professors and practitioner-students have successfully exhibited the ascribed universalistic qualities long enough for them to have internalized similar perspectives and attitudes as to appropriate organizational behavior. Said in another way, they both are or have been members of the sub-culture shared by school functionaries.

The major implication of this similar status is that extended functioning within sequential role positions has in all probability assured an "experiential blindness" to vital variables within the organization. For, as anthropologist Edward T. Hall warns, ". . . culture hides much more than it reveals, and strangely enough what it hides, it hides most effectively from its own participants."(5) Moreover, if such variables are outside of awareness, they are beyond conscious control of the individual.

This set of constraints inherent in the traditional recruitment of individuals into professorships of educational administration has important implications if professors are to be major resources in helping practitioner-students become agents of change. For even if the content problem can be solved, the sequential nature of roles within educational administration may keep both professors and students from seeing vital relationships between concepts of changing and organizational variables affecting the implementation of changes within the organization.

An illustration of this is the introduction into classrooms of technological materials designed to individualize instruction without consideration of the structural arrangements within the organization which have been created over time to keep students progressing at a common and predictable pace.(6) Quite obviously, the unexamined structures will block such implementation attempts no matter how sincerely they were intended or how carefully they were introduced.

Examination of professional preparation programs reveals that for the most part professors and practitioners of educational administration are prepared through similar programs.(7) Although leading departments of educational administration are increasingly developing programs emphasizing theory, research, and inter-disciplinary studies, there is some evidence that implementation of new programs lags seriously behind the efforts of program planners.(8) As a consequence, most professors of educational administration are generalists. They do not engage in research or theory building, have limited educational backgrounds in social sciences, and provide limited opportunities for administration students to study the social sciences.(6) (7) (8) Furthermore, the most common provision for such study is elective courses in colleges of liberal arts.(7)

When the knowledge-content related to planned social change exists within discrete disciplines, the limited background in the social sciences common to professors and students of educational administration is regarded as a major constraint to the identification and comprehension of relevant content.

Contextual Constraints. Examination of the institutional milieu within which the influence process is usually designed and utilized brought into view situational variables that have a great effect on that process.(9) The most obvious of the constraining contextual conditions is the site of the professor-student interaction. Traditionally, students go to the university for instruction, and in the case of students of educational administration, this instruction is typically on a part-time basis.

Although these prevalent conditions are not necessarily dysfunctional to the achievement of all instructional objectives, when the objective is to facilitate the change of social behavior within an organizational (school) setting, the conditions do become significant. For, as Parsons has warned in discussing processes of social behavior, ". . .without the meaning given them by their institutional-structural context they lose their relevance to the understanding of social phenomena."(10)

A less noticeable set of constraining conditions -- less noticeable in the psychological sense that it is more in ground than figure -- is related to the matter of inter-disciplinary cooperation in developing, integrating, and disseminating knowledge. Analysis of this issue suggests that reward systems, reference group norms, and other factors exist within each discipline which seemingly reward isolation and research within one's own discipline and discourage inter-disciplinary endeavors, especially of an applied nature.(11) This is, of course, a critical problem considering the objectives at hand, for if the pre-requisite knowledge must be ordered from several discrete disciplines and if existing conditions make it difficult and professionally non-rewarding for scholars to approach cross-disciplinary development and ordering of applied knowledge, who will resolve the content problem?

The seriousness of this issue of inter-disciplinary cooperation was emphasized in the AMP experience. Staff members devoted several months to consulting with scholars from the various disciplines in an effort to locate and integrate knowledge-content. The major outcome of such effort was recognition of the extreme complexity in just establishing functional working relationships across discipline lines, let alone developing a body of integrated conceptual knowledge. It seemed that the autonomy necessary for the development of each individual field of study became a major barrier to development of knowledge in areas of study cutting across discrete disciplines.

Constraint Analysis: Summary and Implications

Utilization of the communication model to identify forces constraining effective communication between professor and practitioner-students revealed several significant factors relevant to the AMP objective of designing instructional materials on the change process.

1) The knowledge-content central to the field of educational administration lies in several discrete disciplines.
2) Some content areas within the field (planned social change being representative) still await the development of scientifically-based theories to guide integration of conceptual knowledge from the separate disciplines.
3) Theoretical development is especially rare in areas demanding knowledge of an applied nature.
4) Professors and students of educational administration share common experiential and educational backgrounds, which places limitations upon the scope and clarity of their organizational perceptions.

5) Possessing limited backgrounds in the social sciences, professors and students of educational administration are highly dependent upon social scientists for knowledge development and dissemination.

6) Social scientists are primarily rewarded for developing pure knowledge within their own disciplines. Thus, inter-disciplinary efforts of an applied nature are difficult to find or to promote.

7) For the most part, students of administration must acquire conceptual knowledge in the context of the university classroom rather than in the organizational context where the knowledge is to be utilized.

Since AMP's primary concern in regard to the change process was to facilitate the instructional efforts of professors of educational administration, the foregoing constraints were assessed in terms of their effects on the total instructional process. Assessment substantiated the obvious need for content of both a descriptive and explanatory nature. But when the interrelationships between constraints were analyzed, it became equally obvious that there were needs even more basic than content. For example, the constraints revealed that in a content area such as the one at hand, the professor is dependent upon conceptual content from several fields of study in which his background is limited if not completely inadequate. Quite logically, then, he relies upon scholars in the discrete fields to develop the content he needs. In many cases, he further relies upon them to teach knowledge selected from their fields of specialization to practitioner-students.

The difficulty with this approach to meeting situational and personal constraints is simply that it does not work out as anticipated. Scholars mine the knowledge lodes that interest them, and they utilize research methodologies that facilitate their learning. In both cases, any fit to the needs of practitioner-students in educational administration is coincidental.

One might assume that the most significant content could come from the professor's experience as an educational administrator. Since most professors have histories of successful administrative experience, the content problem theoretically, at least, could be solved by them. Examination of the typical professor's background suggests, however, that much of his "successful" experience was probably acquired in maintaining an educational organization and not in changing it. Hence, his vertical mobility through the successive role positions leading to the professorship. Furthermore, the years spent in successful maintenance activities undoubtedly resulted in internalization of behaviors that kept the organization from changing.

Constraint analysis suggests, then, that professors and practitioners first must be helped to find the real problems before content designed to solve problems can be expected to have utility in facilitating planned change. The nature of the constraints also suggests that professors of educational administration will likely have to solve the problems of developing, integrating, and teaching conceptual content, even though they, as a group, are not highly qualified by training, experience, or tradition to assume such a burden. The burden is likely to be carried by them or by no one; for no one else sees it as his problem.

A Different Concept of Instructional Materials

Because of the constraints that affect the instructional efforts of professors, the writer concluded that new instructional materials on the change process (if they were to be functional for professors and/or practitioners in their present social contexts) would have to do the following:

1) Help professors and practitioners bring into awareness the forces that keep educational organizations from changing, as a first step toward helping them to develop skill in identifying the real problems impeding or blocking planned social change within educational organizations.
2) Assist professors and practitioners to locate "sensitizing" and explanatory concepts in the many fields of study having content relevant to the processes central to effecting change.
3) Help professors and practitioners begin to develop theoretical structures necessary to integrate concepts from discrete disciplines into theoretical frameworks useful to agents of change.
4) Provide bridging mechanisms that will enhance the translation of conceptual learning acquired in the university classroom into planned behavioral changes in the practitioner's work context.

A survey of existing types of instructional materials by the writer led to the conclusion that most available materials have been designed for the transmission of conceptual knowledge -- a function not centrally relevant to the needs cited above. Furthermore, it became clear that specific instructional needs related to change had to be identified before the usual transmission type materials could be utilized. In other words, the problem was perceived to be such that a new type of instructional materials was required. The materials required would need to be of a quality that would help achieve the content prerequisites necessary to the design and use of the more traditional, transmission-type materials. Therefore, the design of a new type of instructional materials pertinent to the identification and organization of content related to change in educational organizations was undertaken.

PRODUCTS OF THE DEVELOPMENT PROCESS

This section of the report will describe the package of materials developed to help professors of educational administration meet the requests of their practitioner-students for assistance in effecting change within educational organizations. Since the concept of materials projected here is a new one, the functional objectives and general form of the entire package will be described before the individual parts are introduced.

The requisite functions to be performed by the materials, as suggested by the preceding analysis, were four in number and simply stated were functions of revealing, locating, integrating, and bridging -- revealing latent situational variables, locating relevant conceptual knowledge, integrating the concepts into theoretical guidelines, and bridging the knowledge-practice gap.

The materials designed to meet the demands peculiar to the situation at hand are, when utilized, a methodology of organizational analysis. The package of materials is basically a collection of conceptual frameworks (taxonomies, typologies, matrices) designed to aid the user in performing the functions listed above. As the materials are utilized to this end, they also enhance the "teaching" of concepts identified, although many users might wish to supplement their instructional endeavors with more traditional materials. The materials may be used to generate content in advance of instruction, but are perhaps most effectively used when professors and students utilize them to induce content as the analysis progresses.

Now that the general form of the package is known, we shall begin to describe each part in more detail. As for the method of description, emphasis will be placed on presentation of selected materials, for our major purpose is to introduce a sampling of materials which comprise the basic elements of an analytical process. In no way are the samples that follow intended to represent a completed process of instruction or the sequential stages of a course in planned change. The materials are presented as examples of a special kind of instructional material, and the potential user is encouraged to substitute or add other frameworks as the instructional situation indicates.

It perhaps should also be noted that the materials presented below have been tested with practicing educational administrators in a number of school districts. Even though considerable experience has been accumulated in field situations, a decision was not made to include descriptions of this experience in this chapter. While inclusion was desirable in some ways, the quantity and nature of the data were such that it did not seem to be feasible. As a compromise, "starter" bibliographies generated by each framework have been developed and are available upon request from the University Council for Educational Administration.

Chin's observation that "we are in a primitive stage in creating a body of knowledge for effecting change that is relevant to the existing conditions and problems, . . ."(12) and the practitioner's demands for "know-how" greatly influenced the process of material design. These conditions led to a severe delimitation of the area of change to be examined.

Focusing on the usual situation facing practitioners, it was assumed that in most instances educational administrators would be called upon to direct planned change within schools. It was further assumed that most changes would be directed at the behavior of teachers as individuals or as members of groups. This being the case, administrators must influence teachers if they are to achieve success as change agents. As with professors, administrators will attempt to influence through some form of communication.

This set of assumptions, then, led the writer to use change synonymously with influence, and to consider the teacher as the major target of influence attempts. It also led to selection of the communications model described in the preceding section as the overarching framework to guide selection of generative materials.

Figure 2 illustrates the model with its elemental parts which can aid professors conceptually to identify significant factors that affect the

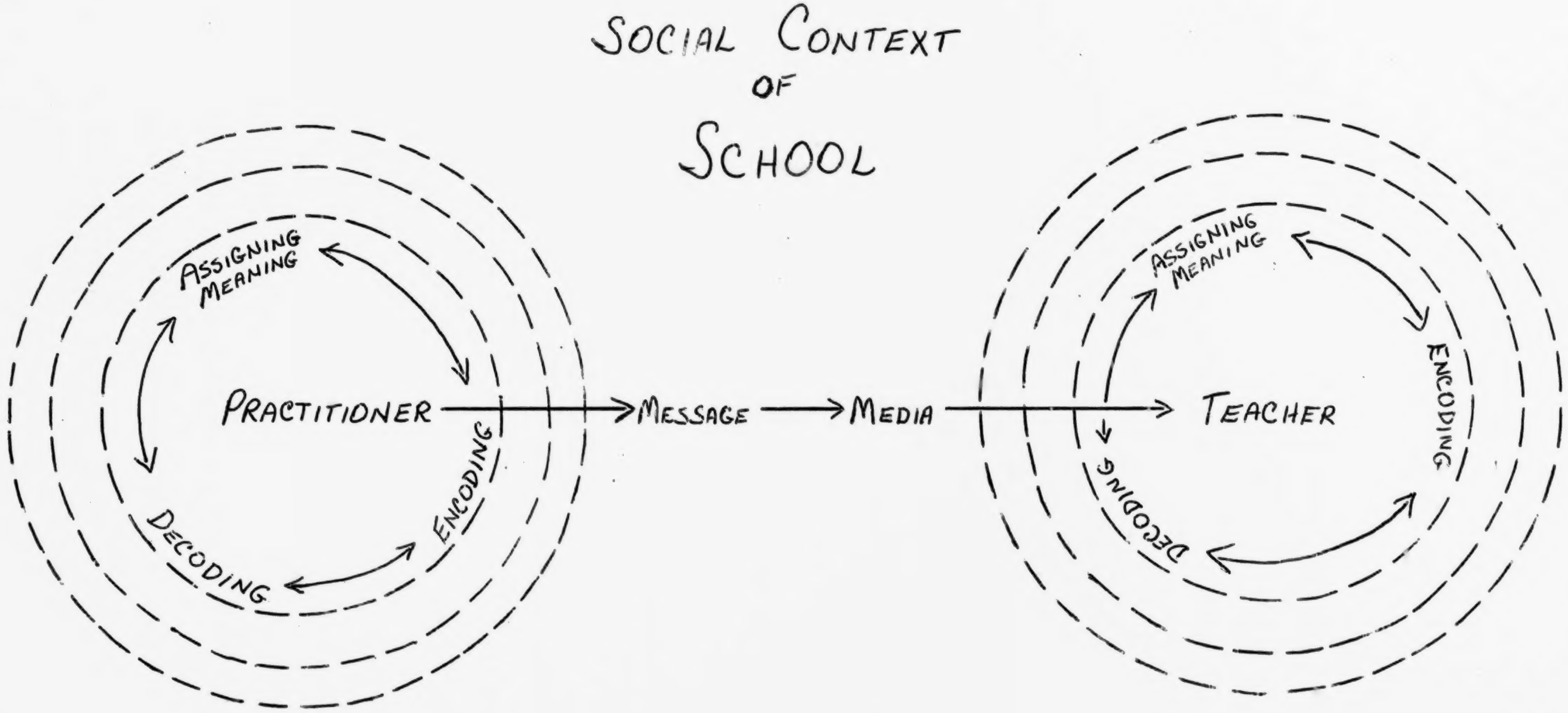
SOCIAL CONTEXT
OF
SCHOOL
ASSIGNING MEANING
PRACTITIONER
ENCODING
DECODING
MESSAGE
MEDIA
ASSIGNING MEANING
TEACHER
ENCODING
DECODING

FIGURE 2

influence process. However, since the basic model can handle numerous sub-frameworks to facilitate examination of relevant factors, some guidelines are necessary to provide bases for selection of conceptual frameworks to "hook on" the basic model. Ideally, theories of changing would provide such guidance, but in their absence, the writer was guided by selected requirements of theories of changing as established by Chin.(13)

The three major requirements, as we interpret Chin, are the necessity to:

1) provide change agents (practitioners) with manipulable variables (variables accessible to control);
2) provide means to identify the client-system's perceptions, role expectations, and values; and
3) provide a reliable basis of diagnosing the organizational forces facing the client-system.

Application of these guidelines within the boundaries of the model led the writer to concentrate efforts of conceptualization on the practitioner and teacher aspects of the model with emphasis on the contextual variables affecting influencer-influencee relationships. This decision removed the message and media elements from examination --- not because the elements were considered unimportant, but simply because the adjudged necessity for delimitation and the selected guidelines forced an ordering of priorities.

One other preliminary decision gave direction to conceptualization efforts as well as helped provide the structure for the description to follow. It was decided that since practitioners, by the very nature of their role assignments, were basically charged with maintaining organizations, identification of significant variables might be enhanced by emphasizing examination of the forces operating to keep one's organization from changing.

Having described some boundaries within which the prototype materials and processes related to change were developed, a more precise report will now be undertaken. The first part of the report will introduce conceptual tools to help identify forces that tend to keep role behavior from changing, including a "macro look" and a "micro look" at change. The macro view will emphasize forces affecting the organization more broadly, and the micro view will focus more on role considerations.

The second aspect of the report will introduce materials designed to help practitioners identify means for influencing, i.e., variables accessible to their control. Using Chin's terminology, the sequence of description in the report will proceed as follows: examination of organizational forces, then role values, and, finally, manipulable variables.

Organizational Analysis

The first conceptual framework focuses on the social context of the model (Figure 2) and utilizes social systems theory to force attention to the school as an organizational type. Figure 3 lists the four functional imperatives identified by Parsons as those basic functions that must be performed by all social systems to maintain stability and effectiveness. (14) (15) It is suggested that the concept of functional imperatives can be a very helpful one, especially if it is applied through inter-systems

FUNCTIONAL IMPERATIVES
OF
SOCIAL SYSTEMS

1. PATTERN MAINTENANCE
2. INTEGRATION
3. GOAL ATTAINMENT
4. ADAPTATION

FIGURE 3

analysis. However, it is proposed here as a means to classify school organizations as to type.

Because organizations typically emphasize some of the functional imperatives more than others, it is suggested that such a basis for classification when applied to schools will permit a comparative analysis of organization types which will provide much data relevant to consideration of problems of stability and/or change.(16)

Classification of schools as pattern maintenance type organizations leads to literature rich in implications for explanation and prediction of consequent role behavior, e.g., the structural-functional mode of analysis.

Another perspective on the school as an organization is provided by use of Carlson's typology of service organizations.(17) The typology as illustrated in Figure 4 permits classification of schools on the basis of client control over participation and organizational control over client admission. Such a classification points up the probable presence of recalcitrant students among the student clients -- a situation resulting in organizational consequences having constraining effects on the administrator's sphere of discretion in decision-making.

A few examples of important consequences are the inherent demands for client control and motivation, and protection of the authority base of school functionaries.

A third conceptual framework, presented in Figure 5, is helpful in identifying organizational variables central to maintenance and adaptation decisions.(18) Leavitt's conceptualization of the variables he selected

Selectivity in Client Organizational Relationship in Service Organizations

		Client Control Over Own Participation in Organization	
		Yes	No
Organizational Control Over Admission	Yes		
	No		

Figure 4

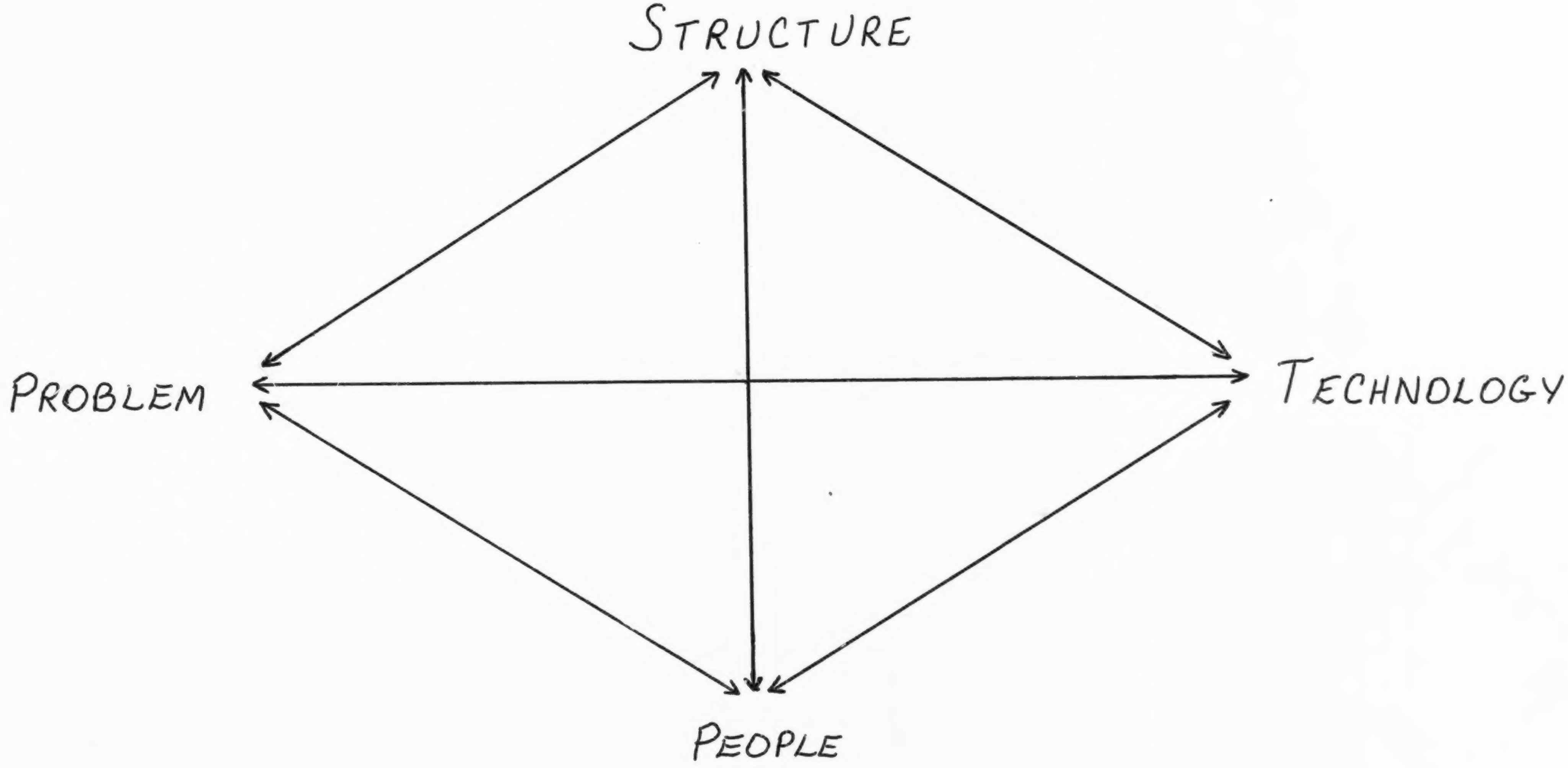
STRUCTURE
PROBLEM
TECHNOLOGY
PEOPLE

FIGURE 5

as being of major importance calls attention to the interrelationships between and among the variables.

It is suggested that further consideration of these variables and their interrelationships will lead to explanatory concepts relevant to strategies of changing or maintaining behavior within the organizational context.

Summarizing the description of materials to this point, three conceptual frameworks have been introduced as having potential utility to guide examination of forces affecting the influencer-influencee relationship between administrators and teachers. It should be obvious that the value of what has been proposed is only found in the process of utilization. The frameworks are heuristic instruments and become functional only when put into operation.

In terms of the total process proposed here, however, it should be noted that the frameworks have been selected by guiding criteria which assure a "fit" within the larger influence process. To relate the first three frameworks to the larger guiding framework (Figure 2), it can be seen that the sub-frameworks can point the way to conceptual knowledge in the social context that affects the behavior of influencers and influencees as depicted in the model.

Analysis of Variables Affecting Client-System Values

Having introduced some frameworks to help "see" the factors impinging on personnel from the social contexts of the organization and its surrounding environment, the analysis will now shrink in scope and identify some means to examine forces affecting the systems of values held by role occupants. To relate these frameworks to the model in Figure 2, they would attach in the circles concentric to the practitioner and teacher stages.

To facilitate understanding of the forces influencing the client-system's values, an adaptation of a conceptual framework developed by Abbott is proposed.(19) The framework, as illustrated in Figure 6, is helpful in isolating for study the major factors affecting role performance. Besides forcing an examination of cognitive orientations and affective responses to roles, the framework facilitates examination of selected intervening variables by isolating them for study. In Figure 6 the intervening variables suggested by Abbott -- reward systems and reference-group norms -- are identified. The framework can be made more versatile by rotating selected variables for analysis.

Another feature of Figure 6 is that with minor modification it can aid in analysis of the complementarity of interacting roles. This is accomplished by removing the intervening variables in Figure 6 (this can be facilitated by use of a composite transparency) and inserting interacting role positions in their vacated space and between the arrows in the center of the diagram. Figure 7 lists three sets of interacting role positions which can be inserted in the diagram successively to guide analysis.

Another framework that provides more data about complementary roles is illustrated in Figure 8. When the behaviors are listed that teachers need from students in the student-teacher relationship, which is central to the business of the school, and then compared to the behaviors teachers need from their colleagues and principal, the strong influence of the

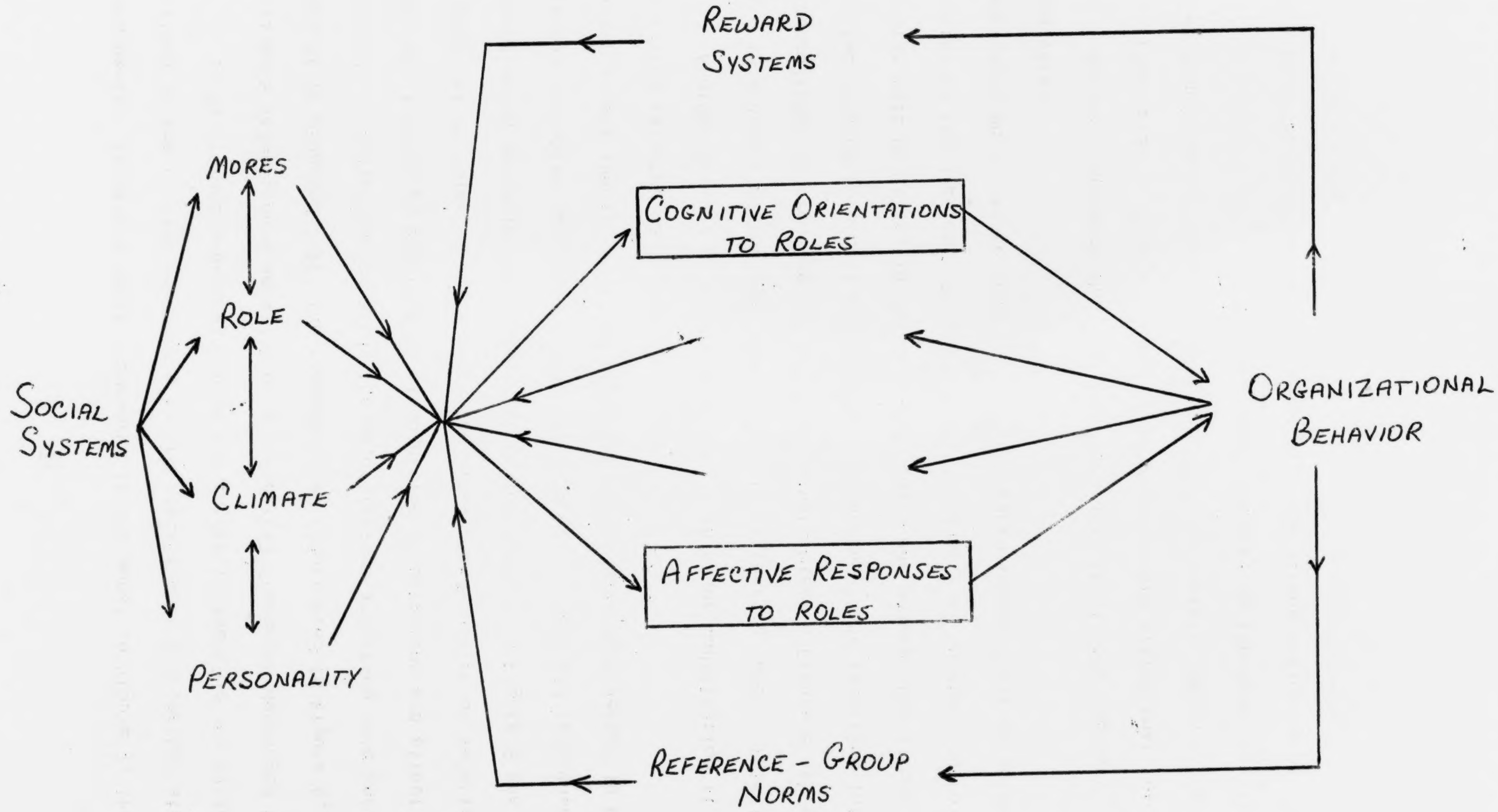
Reward Systems
Mores
Role
Climate
Personality
Social Systems
Cognitive Orientations to Roles
Affective Responses to Roles
Organizational Behavior
Reference - Group Norms

FIGURE 6

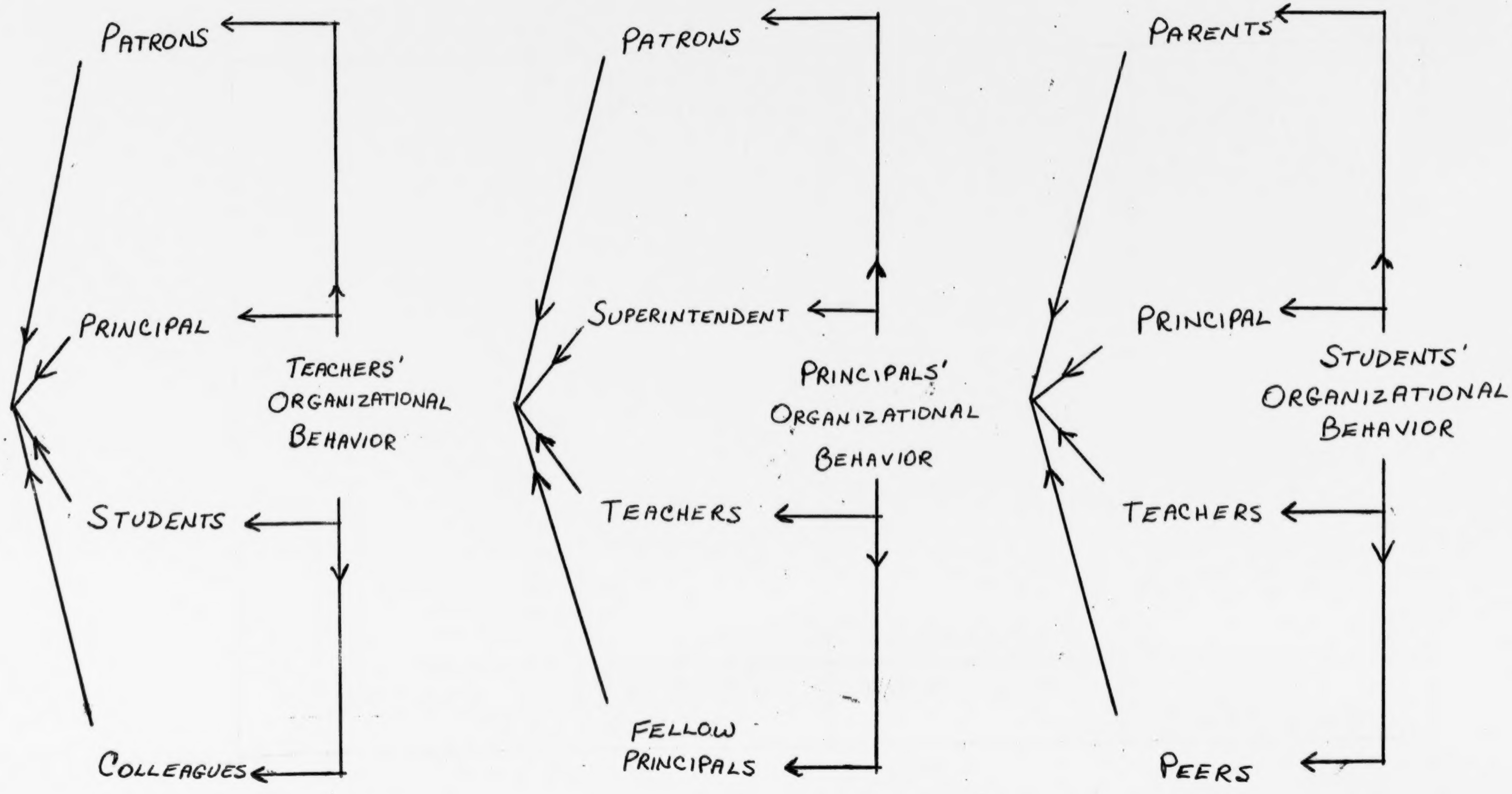
PATRONS
PRINCIPAL
TEACHERS' ORGANIZATIONAL BEHAVIOR
STUDENTS
COLLEAGUES
PATRONS
SUPERINTENDENT
PRINCIPALS' ORGANIZATIONAL BEHAVIOR
TEACHERS
FELLOW PRINCIPALS
PARENTS
PRINCIPAL
STUDENTS' ORGANIZATIONAL BEHAVIOR
TEACHERS
PEERS

FIGURE 7

WHAT TEACHERS NEED FROM:

STUDENTS	OTHER TEACHERS	PRINCIPAL	FACULTY NORMS

FIGURE 8

functions performed within the classroom social systems becomes apparent. Such an analysis also begins to bring into awareness the bases of power held by students.

The final column in Figure 8, entitled Faculty Norms, facilitates identification of norms that have evolved from faculty consensus as to what behaviors must be perpetuated within the organization. Once the columns are filled, valuable data are available for analysis.

Figure 9 introduces a matrix which aids examination of the interaction of certain executive functions and predispositional sets. (20) This matrix is suggested as having special value for examination by school executives because some of the important controlling functions within school organizations are of necessity exerted at the recruitment and promotion levels.

The second set of conceptual frameworks was directed at gaining content and insights relevant to the client system's role values. Frameworks were introduced to point up variables affecting role learning, the effects of complementary roles, and the normative structures evolving out of functional demands, and the relationship between predispositional sets and performance of executive functions.

Variables Which Can Be Manipulated

Although all frameworks to this point have revealed factors affecting the influencer-influencee relationship between administrators and teachers, when we seek variables accessible to the influence of administrators, it is only logical that we examine their bases of power.

THE INTERACTION OF EXECUTIVE FUNCTIONS AND PREDISPOSITIONAL SETS

EXECUTIVE FUNCTIONS - ORGANIZATIONAL REQUISITES

CATHEXES OF:

PREDISPOSITIONAL SET:
A DEVELOPMENTAL
CONDITION OF
THE EGO

	HOMEOSTATIC	MEDIATIVE	PROACTIVE
PERSONS	1	2	3
PERSONS-IDEAS (FUSION)	2	1	3
IDEAS	3	2	1

1 PRIMARY PERFORMANCES
2 SECONDARY
3 TERTIARY

FIGURE 9

A very useful system of classifying bases of power has been developed by French and Raven.(21) In their conception of power, the influencer can only influence when his actions have significance for the needs or values of the person being influenced. This condition of significance is termed a motive base.

Figure 10 provides a framework to facilitate assessment of the power bases available to administrators in relation to the motive bases of various types of teachers. The first four teacher types are those identified by Griffiths and his associates;(22) the subject-pupil oriented type has been added.

The framework can be used by listing possible forms of influence within each power base category under the teacher type where a motive base is evident or suspected. Once the data are entered in the matrix, examination of the cells will disclose the degree of linkage between power bases and motive bases. The resultant findings provide direction for effective use of available power.

Field testing of materials revealed that administrator's power varied with functions to be performed. As a consequence, a new framework was designed to aid study of power bases and functions performed in two major dimensions of the school organization.

Figure 11 identifies the two organizational dimensions as Instructional and Bureaucratic. The distinction may be made more clear if the teacher is regarded as an employee in the bureaucratic dimension and as a professional person in the instructional dimension.

	TEACHER TYPES				
BASES OF POWER	BENEFITS ORIENTED	UPWARD MOBILES	SUBJECT ORIENTED	PUPIL ORIENTED	SUBJECT- PUPIL ORIENTED
COERCIVE					
REWARD					
EXPERT					
LEGITIMATE					
REFERENT					

FIGURE 10

	INSTRUCTIONAL	BUREAUCRATIC
COERCIVE		
REWARD		
EXPERT		
LEGITIMATE		
REFERENT		

FIGURE 11

One helpful way to use Figure 11 is to list functions performed by the administrator in each category, and then identify the functions requiring the administrator to influence the behavior of teachers. When this is done, a comparative analysis between dimensions will reveal performance patterns. A final comparison of performance patterns and bases of power utilized to influence is usually found to be instructive.

Following social systems theory and the concept of homeostasis, a typology of change was developed that classified types of change as to the anticipated degree of disruption they would bring to the equilibrium of the organization.

Change types suggested by Chin(23) were classified as either stabilizing or disruptive, as shown in Figure 12. This formulation of change types is suggested as being useful in many ways. One use is to simply classify contemplated innovations to ascertain the degree of disruption likely to accompany their adoption. Knowledge about the "disruptability" of a contemplated change can be helpful at both the planning and implementation stages of the change process. The formulation is especially useful when selected variables are placed along the vertical axis of the diagram permitting exploration of relationships. For example, Figure 12 has along the vertical axis three classes of change strategies identified by Chin.(24) Contemplated changes placed in the matrix can be analyzed as to the most appropriate form or forms of implementation strategy. Or, of course, a sequence of shifting strategies can be planned, if indicated.

TYPES OF CHANGE

TYPE OF CHANGE STRATEGY	STABILIZING			DISRUPTIVE	
	SUBSTITUTION	ALTERATION	VARIATION	RE-STRUCTURING	VALUE RE-ORIENTATION
POWER					
EMPIRICAL-RATIONAL					
NORMATIVE RE-EDUCATIVE					

FIGURE 12

Another helpful set of variables when placed along the vertical axis is a set of units of change; for example, individual teachers, groups of teachers, building or departmental faculties, or the entire school system. If the "disruptability threshold" of each unit of change can be determined, knowledge of the relationship between types of change and the disruptability threshold of various units of change can provide manipulable means for agents of change. One might hypothesize that the greater the psychological safety of the unit of change, the greater the degree of disruption it can stand.

The final set of frameworks was directed at variables affecting the influence process that were accessible to the control of the administrator. Frameworks were introduced that facilitated examination of power and motive bases; instructional and bureaucratic dimensions of school organizations; and types, strategies, and units of change.

CONCLUSIONS

Professors of educational administration face formidable obstacles in finding and transmitting cogent content on planned change to their practitioner-students. Despite the heroic efforts of leaders in the field, present circumstances are such that resolution of the content problem is left largely to the professors themselves.

The writer has examined the situation as it exists and has offered the following assistance:

1) A method of analyzing the process of instructing educational

administrators was explicated to enable professors to be more effective in uncovering and dealing with constraints affecting their instruction.

2) A methodology of creating and utilizing a special type of instructional materials was introduced so that professors constrained by training and contextual variables can in effect re-educate themselves as they develop significant content for their students.

3) An approach to the complex study of how to effect changes in a pattern-maintenance type organization was advanced so that professors can begin to evolve and integrate relevant concepts into change concepts that are sensitive to the forces that keep organizations from changing.

It is significant that the assistance offered is in the form of means rather than ends. This is unfortunate, in an evaluative sense, because the value of the materials will only be revealed as they are utilized and, hopefully, modified. However, in a developmental sense, this is extremely fortunate, because the field of educational administration is in a developmental state that will only be improved by widespread use of developmental means.

FOOTNOTES

(1) Edward J. Robinson, Communication and Public Relations, (Columbus, Ohio: Charles E. Merrill Books, Inc., 1966), p. 122.

(2) W. G. Bennis, Changing Organizations, (New York: McGraw-Hill Book Co., 1966), p. 99.

(3) R. Chin, "Basic Strategies and Procedures in Effecting Change," Paper prepared for a publication of the Conference on Strategies and Procedures in Planning and Effecting Needed Changes in Education, Scottsdale, Arizona, April, 1967, p. 28.

(4) Jean Hills, "Some Problems of Educational Organization in Comparative Perspective," The Center for the Advanced Study of Educational Administration, University of Oregon, Eugene, Oregon, 1965, p. 23.

(5) Edward T. Hall, The Silent Language, (New York: Fawcett World Library, A premier Book, 1959), p. 39.

(6) See Richard O. Carlson, Adoption of Educational Innovations, (Eugene, Oregon: Center for the Advanced Study of Educational Administration, 1965).

(7) American Association of School Administrators, The Professional Preparation of Superintendents of Schools, (Washington, D. C., 1964).

(8) Jean Hills, "Educational Administration: A Field in Transition?" Educational Administration Quarterly, Vol. 1, no. 1 Winter, 1965, pp. 58-66.

(9) Donald Willower and Jack Culbertson, editors. The Professorship in Educational Administration, (Columbus, Ohio: The University Council for Educational Administration, 1964).

(10) Talcott Parsons. Essays in Sociological Theory, Pure and Applied, (Glencoe, Ill.: The Free Press, 1949), p. 38.

(11) W. G. Bennis, "A New Role for the Behavioral Sciences: Effecting Organizational Change," Administrative Science Quarterly, Vol. 8 (1963), pp. 125-165.

(12) Robert Chin, Ibid, p. 29.

(13) Robert Chin, Ibid, pp. 28-29. Also in W. G. Bennis, Op. cit.(2), p. 100.

(14) Talcott Parsons, "An Outline of the Social System" in Theories of Society, Vol. 1, Foundations of Modern Sociological Theory, edited by Talcott Parsons, et. al. (New York: The Free Press of Glencoe, 1961), pp. 30-79.

(15) The four functional imperatives are listed on a full sheet because field testing revealed the utility of having each framework available as duplicated sheets for individual students and as transparencies for group use.

(16) See Jean Hills, Op. cit., (4) for a thoughtful comparative analysis which reveals the utility of classifying organizations on the basis of Parson's functional imperatives.

(17) Richard O. Carlson, "Environmental Constraints and Organizational Consequences: The Public School and Its Clients," in Behavioral Science and Educational Administration, edited by Daniel Griffiths, the 63rd Yearbook, Part 11, of the National Society for the Study of Education, (Chicago: The University of Chicago Press, 1964), p. 265.

(18) Harold J. Leavitt, Managerial Psychology, (Chicago: The University of Chicago Press, 1958), p. 323.

(19) Max Abbott, "Intervening Variables in Organizational Behavior," Educational Administration Quarterly, Vol. 1, No. 1 (Winter, 1965), p. 12.

(20) Abraham Zaleznik, "Managerial Behavior and Interpersonal Competence," Behavioral Science, Vol. 9, No. 2 (April, 1964), pp. 156-166.

(21) J. R. P. French, Jr., and B. Raven, "The Bases of Social Power," in Studies in Social Power, edited by Dorwin Cartwright, (Ann Arbor: University of Michigan, Institute for Social Research, 1959), pp. 150-167.

(22) Daniel Griffiths, et. al., "Teacher Mobility in New York City," Educational Administration Quarterly, Vol. 1, No. 1, (Winter, 1965) pp. 15-31.

(23) Robert Chin, "Models and Ideas About Changing," Paper given at Symposium on Acceptance of New Ideas, University of Nebraska, November, 1963.

(24) Robert Chin, Op. cit., (3).

CHAPTER FOUR

A Prototype Computer-Based System

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This chapter describes the development and testing of a computer-based system for research and instruction in educational administration. The first section includes a rationale for adopting a systems approach, a brief explication of some simple systems concepts, and the application of these concepts to the educational administrator, the educational organization, and to instruction. The next section describes the development of a computer-based system incorporating these concepts along with the design and testing of two prototype administrative problems. The third section deals with demonstration and dissemination activities followed in the last section by a discussion of implications of all the above activities for future research and instruction in educational administration.

A RATIONALE

Mention was made earlier in Chapter One of AMP's intent to "achieve explicit relationships between and among concepts, materials, media and purpose,"(p. 5) Essentially, this intention implicitly asserts that higher quality of instruction would require materials based on emerging administrative concepts embodied in vivid and directed learning experiences. Consequently, the explicit primary objectives of AMP called for a large-scale and long-range plan for instructional materials that would incorporate: (1) emerging concepts in educational administration; (2) developments in learning and instructional theory; and (3) new directions in educational media and technology. Guided by these objectives, the initial phases of the Project emphasized the search for and specification of these "emerging" concepts in administration, learning theory, and educational technology. Recurrent in the literature, conferences, and developmental research in all three of these areas seemed to be some aspect of systems analysis, synthesis, and operation. Research and theory applicable to the field of administration and management were being increasingly influenced by ideas of rational decision making rooted in concepts of the organization as a system. The impetus for this was partially due to increasing use of electronic data processing in accounting practices in large organizations, including schools. But more importantly, the success of the "systems" approach in some government and military agencies spurred interest in applying similar ideas to all areas of administration, including education. A partial list of some of the works in this area may be found in the selected bibliography (Appendix C) of this report.

In learning theory, especially in the area of the psychology of cognition, new theoretical positions and experimental procedures were being developed. Human cognition was being conceived of as an information processing system.(1) Models of human learning processes employing cybernetic principles and analogies to general computer processes for handling information were competing with more traditional S-R formulations and mathematical models of learning.(2) Many of these new models were even being defined and operationalized in terms of computer programs or simulations. A new way of evaluating these simulations of human performance was to "run" the model on a computer and examine the computer's performance. These concepts and related techniques showed promise for controlled investigation of human cognitive processes in less restrictive (and hence more natural) environments than those employed in traditional cognitive experimentation. In fact, it now seemed possible to design cognitive studies that could avoid polarizing research-value orientations of "experimental control" or "meaningfulness." Although progress has been less than originally hoped for in this area, there is still significant, new psychological research being generated by these models on human information processing.

Systems operations had begun to influence the field of audio-visual education. Here there was an increasing concern with reconceiving and redefining professional responsibilities.(3) The growing awareness of man-machine systems in training programs of the military services had their implications for civilian instruction. Moreover, the advent of programmed instruction shifted the traditional emphasis away from merely displaying information to students and toward an equal concern with the collection of students' responses. The need for systematically linking responses, displays, and instructional objectives prompted the development of conceptual and operational models of total instructional systems.

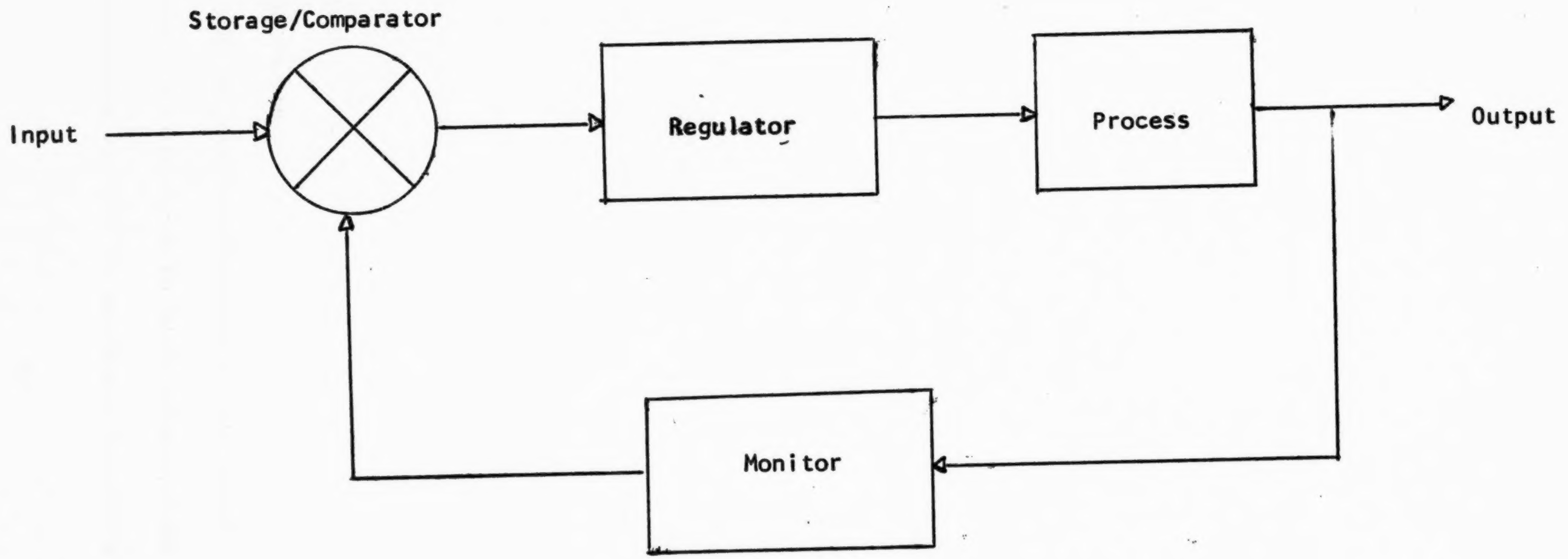
In sum, the three areas on which the primary objectives of the Articulated Media Project focused indicated an emerging preoccupation with systems concepts. Admittedly, these concepts differed widely in the definitions and domains of concern. And even though these concepts seemed to promise a foundation for a common inter-disciplinary language, present investigations into different disciplines still reveal major variations in use and meaning among disciplines.(4) But for the AMP staff the question became: What did the use of systems concepts in administration, psychology, and media have in common and of what importance would these generalizations be for improving instructional experiences in administrative training programs? In the sections which follow, an attempt will be made to answer these questions (1) by providing a description of some general systems concepts, and (2) by the application of these concepts to a model of the educational administrator, an instructional system, and an educational organization. These descriptions are necessary as a preface to discussion of the computer-based system which follows. As preface they will attempt to specify briefly some notions about the systems concepts which guided later developments, although brevity of treatment invites oversimplification and incompleteness.

A Simple Systems Concept

The systems which are of concern here are complex, purposeful and adaptive. They are complex since they are composed of several interacting components or subsystems performing different functions; purposeful insofar as the total system, viz., the network of subsystems as a whole, is seeking some overall objectives or relationships with its environment; and adaptive inasmuch as the systems have the capability of changing their performance when the environment reduces or threatens to reduce their effectiveness.

Abstractly, a simple system which demonstrates these features is composed of the following components or functions:

Storage/Comparator
Regulator
Processor
Monitor


Storage/Comparator
Input
Regulator
Process
Output
Monitor

MAN-MACHINE SYSTEM FOR THE CONTROL AND REGULATION OF PERFORMANCE (5)

Figure 13

The Comparator receives two informational inputs. One is from the Monitor concerning the "just past" output of the system. The other input is from some outside agency, such as a larger or parallel system to which it is linked, such that this input concerns targets or total-paths for the system. This information is stored at this point in the system. The Comparator matches both inputs - - information about actual and information about desired system outputs - - and computes the difference or "error," if any. The results of this comparison are then transmitted to the Regulator which modifies its directions to the Processor according to the nature, direction and level of error. These modifications in Processor operations will in turn change the system's output. Again, this will be noted by the Monitor and reported back to the Comparator. The cycle continues until the "error", as difference between actual and desired output, is brought within acceptable limits. Hence, this combination of subsystems communicating with each other (complex), seeking a target (purposeful), and modifying their output in accordance with their distance from that target (adaptive) illustrates the original definition.

Some of the processes engaged in by the subsystem need closer examination. First, subsystems must have sensors to bring information into the system. These sensors must be suited to receiving the "signal energies" appropriate to the information they seek, e.g., photo-cells for light waves, microphones for sound waves, mercury columns for air pressure, and so forth. If the information is in more than one form of energy, multiple sensors are required. Moreover, they must have the capability of filtering noise from systematic fluctuations. Finally, sensors should be capable of discriminating differences in energy fluctuations with a precision approximating the analytical and regulatory abilities of the rest of the system. Insufficient precision will be wasteful of the system's adaptive potential while excessive precision will be unjustifiably costly as well as confusing.

Signal energy, once sensed, must be encoded in a language which can be decoded by the Comparator and should be sufficiently redundant to insure against error while being powerful enough to reach its destination. The system will process this information, internally, in one or another of three general ways, namely, by transmission, translation and/or transformation. Transmission entails a change in neither content or form, e.g., a letter received is duplicated and copies sent to various agencies within a system. Translation involves a change in form but not in content, e.g., the same letter, originally written in Spanish, is changed into a similar letter written in English which is sent to other agencies within the system. Transformation, on the other hand, changes both the form and content of the information. Thus the letter may be classified as: (1) coming from a parent; (2) supporting a proposed school program; and (3) making available certain community resources. These classifications, rather than the letter itself, become the information which is actually communicated to system agencies other than the receiving one.

The Administrator as Information Processor

Applying these information systems concepts to the performance of humans does not imply a mechanistic insomorphism which characterizes anatomy and physiology in terms of wiring and electrical operations. Rather, within figurative limits the analogy has heuristic rather than descriptive value. That is, viewing the administrator as an information processing system is a means for reconceptualizing prior knowledge about his modus operandi, toward the end of discovering and testing broader and more useful concepts.

Accordingly, a useful parallel might be developed, for example, between part of the administrator's higher cortical operations and the storage function, on the one hand, and with other cortical operations which would approximate the comparison function, on the other. It is in this vein that the following description should be understood.

Information about the organization and environment, in some energy form such as light and sound, is received by the administrator's senses, i.e., eyes and ears, transformed into electro-chemical energy in the nervous system and sent to the memory and comparison areas. Ultimately, in these areas there will be deposited an internal representation of information related to the objectives of the administrator as well as to the performance of the organization for which he is responsible. Comparisons between the internal representations of objectives and performance will be made, error determined and presented to a part of the nervous system which will determine what course of action to take, in view of the error. This area, call it the Regulator, will retrieve from memory other experiences and knowledge, e.g., other situations with similar types of errors and outcomes. Decision guidelines or rule formulations that dealt with these similar previous situations will be recalled. The process continues until some decision is reached about the immediate error situation and appropriate nervous stimulations are sent to the muscles, for a course of action to be taken, i.e., words to be spoken, memo to be written or a set of movements to be made. The action taken will in some way effect the organization as well as the environment and this consequent effect (even if the decision is one of no change) will be available to the senses in the form of signal energies. From this sensing process the cycle begins anew.

Despite its seeming simplicity, this conception of the administrator permits recasting of some perennial questions about administrative processes:

1. Given that there are certain "states of the environment" to be sensed, does the administrator possess sensors appropriate to the tasks?
2. Are his sensors properly receptive to information about his own organization, other organizations, and the larger environment?
3. What sort of signal-noise discriminations does he discard as either irrelevant to his purposes or merely random fluctuations? Conversely what signal energies does he seek and receive as relevant information and systematic fluctuations?
4. How are these signal energies transformed and stored in memory, i.e., how is some state of the world represented internally and made available for retrieval?
5. In a given decision situation what pieces of information are retrieved, compared, transformed, stored or discarded?
6. In decision situations what are the variations in rule formulations employed, what information is necessary to make rules usable, how precise are the rules and how consistent is their output?

Beyond the intriguing analyses that answers to these questions might permit lies the larger realm of differences between and among administrators.

The Organization as an Information Processing System

The idea of an organization as an information processing system is found most frequently in the literature. Since the idea is so familiar and since it had minimal emphasis in this part of the Articulated Media Project, it warrants only brief mention here.

Some agencies of the organization function as monitors. They scan the rest of the organization, the organizational output and the environment such as the town, state, and professional community. Information that is received is transformed, translated, or transmitted intact to the organization's storage and comparator agencies. All the states of the world available for monitoring can be thought of as a potential data base and those states that are monitored, recorded, and stored can be thought of as the system's actual data base.

Again, some of the information stored will relate to policies, objectives, and goal-paths while other information will concern organizational past performance, or deployment of resources. Comparisons among these categories of information will result in error findings or deviations from goal-path, policies, or objectives. The regulating agency will analyze this error and formulate explanations and hypotheses for its cause. Information to test these explanations or hypotheses may then be processed against decision tables or regulations and a course of action selected which can be transmitted to all or one of the other system agencies and/or the environment. The effects of this course of action will in turn be monitored and the cycle continued.

Instruction as an Information System

To illustrate the simple systems concepts applied to instructional systems, the regular operations of a classroom teacher may be analyzed. By including the system function of "display" which has been merely implicit till now, the illustration becomes salient.

From some data base, such as a textbook or his own thoughts, a teacher selects some information to display to his students by referring to a page number, writing on the chalkboard or perhaps, by speaking. He then observes or monitors his students' responses, analyzes them for correctness, precision, or relevance and then makes a control decision concerning the next step to be taken to achieve certain objectives with these students. In the typical classroom this cycle is often executed with little explicit awareness of it and with many of the processes occurring simultaneously. However, an insightful teacher performs much of this process with great subtlety and discrimination. Still, the introduction of sophisticated hardware and the explicit formulation of information system concepts at selected points in educational processes may yield substantial benefits. This yield would probably be beneficial at first for instructional research but ultimately for instruction itself.

To corroborate this contention, consider some possible changes and their ensuing advantages which could be, and in some cases have been, introduced.

The data base might well contain information already formatted in "chunks" such as strings of words or numbers, transparent slides or motion picture frames, and so on. These chunks might be accessed either in some prescribed sequence or randomly according to need. On the other hand, chunks might be stored with variable parameters so that strings of words or numbers could be modified in order to change questions, instructions or the like. Similarly, data about a simulated environment could be manipulated so that either selected aspects of that environment could be emphasized or modified to meet the needs of a current situation. An extension of this direction points to a more radical development, namely the storing of relatively atomic elements of information, such as letters, numbers and lines, out of which new information displays are constructed. The importance of this development is that information to be displayed need not have been stored in its final form, but rather it can be generated in accordance with a set of rules for interpreting a subject's responses. This potential seems to be of considerable magnitude.

The DISPLAY may represent all the usual "audiovisual devices" as well as Cathode-ray tubes, teletype hard copy, specially constructed panel boards or any combination of these.

Students' processes which can be monitored consist of the usual overt responses, such as multiple-choice answers, true-false answers, and ratings. Response forms may also allow many open-ended varieties, including those with greater or lesser constraints.

INFORMATION ANALYSIS can collect, store, code, operate, and selectively disseminate data concerning the student's behavior. These functions can be performed in relation to the student's last response or his last n responses, the correctness of his answers, response latencies, as well as degree, direction, and pattern of errors. These functions can be performed by integrating a large number of varied, simultaneous measurements. Although the simultaneous discriminations of an excellent human tutor may not be equalled by these processes, still, the feasibility of developing such excellent tutors in sufficient quantity is highly doubtful. Add to this the advantage to be gained by making some of these measurements explicit and public and the potential contribution to a general advancement of knowledge of education becomes promising.

Finally, CONTROL requests and "interprets" the analyzed information in terms of a number of models whose hypotheses are available to it. Some sample of the range of these "interpretations" are:

1. a satisfactory discrimination between two or more possible student descriptions cannot yet be made; more information pertaining to these alternatives is needed.
2. the student needs more information to perform his task.
3. the student needs more instruction to perform his task.
4. the student performs better when presented with certain displays or information types.
5. the student's responses are ambiguous or contradictory; a wider variety of responses should be sampled.
6. more frequent or finer time-samples are needed.
7. too much data are being collected; many of the variables add no new information.
8. a number of variables co-vary in such a way that they can most usefully be combined in a single index.
9. no decision can be made within the given system.

Notice that the decisions are relevant to each of the parts of the total system, i.e., what next to display from the data base, how best to display it, what responses to monitor, how best to manipulate data about the measurement of these responses and finally whether or not CONTROL itself is adequate to its task. The implementation of this type of instructional system would provide an articulation of processes and components heretofore lacking in approaches to the improvement of learning situations.

These simple systems concepts, abstract and applied, have had an obvious formative effect on the viewpoint which guided us to the specific research and development efforts undertaken. These tasks, very generally, became an exploration of techniques for researching a subset of administrat*or* processes, on the one hand, and instructional processes, on the other.

Information and the Administrator

The administrator is a unique node in a communications network or information system where inputs to him are various forms of secondary information, outputs from him are decisions or problem solutions, and goals center upon the regulation and adaptation of an organization devoted to the education of students.

The principal underlying assumption in the approach described in this section is that of the administrator viewed as an information processor. That is, the basic function of the educational administrator is comprised of a number of activities concerned with the processing of information (e.g., searching, decoding, translating, transforming, etc.). Moreover, the information that the administrator handles is largely "second hand", i.e., not a matter of "raw" or first-hand perception but, rather, the pre-encoded or digested statements and judgments that others (teachers, assistants, superiors) transmit to him.

This view of the administrator conspicuously omits reference to the perception of primary data (observing teachers, inspecting buildings, etc.)

and to critical and diverse problems of human relations. The position being emphasized here, as a point of departure, is contained in the underlined sentence above.

In fact, the assumption that the administrator is basically the key information processor in an educational system extends some of our traditional concepts about decision making and problem solving in administrative situations.

The information that an administrator seeks, as well as the interpretation and value he places upon it, reveals much about the way he conceives a problem. For example, the information-processor concept would insist that the administrator does not "identify the problem" for solution, nor "select the alternatives for decision" as though they existed passively "out there" in the real world awaiting his discovery of them. Rather, matters for decision or solution are actively constructed through the information he seeks, interprets, combines, and evaluates as being contributive to his conception of problems. His "problem formulation" is, then, dependent upon the information he seeks and selects, the interpretation and value he places upon it, and the ways in which he combines information--or transforms it--in the design of alternatives for decision or solution.

Of corollary interest in this view of the administrator as an information processor are the factors that influence the "problem formulation" capacities of the educational administrator. That is, to what may we attribute differences in the designs of problems that various administrators produce? Are these differences correlated with administrative experience? Are they due to personality factors such as intelligence or creativity? Are they influenced by formal educational experiences at universities? Are they traceable to taking or omitting certain courses? A catalogue of similar questions can be encompassed within a research scheme such as that suggested by Shartle and presented in Figure 14.

In terms as the system described here, the implications of Figure 14 are that such independent variables of experience and personality factors may be correlated with the dependent variables of performance as manifested in types of "problem formulations" or, to use another term, "cognitive models" for information processing. It is largely in these terms that the Computer-Based System is conceived as a means to improve research, instruction, and materials development in educational administration. If the assumptions of the administrator as an information processor are tenable, then developing such a system may be beneficial for both research and instructional purposes.

To produce correlational data of the kinds indicated in Figure 14 would necessitate mounting a large research effort which would include the development of a typology of "cognitive models" used by educational administrators in formulating problems. But from the initial stages of such research could emerge the kind of knowledge needed for further development and improvement of instruction in educational administration. Specifically, the following directions could be taken:

1. With an empirically-supported typology of "cognitive models" (or decision-making strategies) used by administrators, ways for expansion and refinement of these models could be indicated.
2. Adaptation of "cognitive models" from other sources (such as operations research and the newer management sciences) could be made and

Figure 14

ILLUSTRATIVE VARIABLES IN A MODEL FOR PREDICTING ORGANIZATIONAL BEHAVIOR (6)

INDEPENDENT ANTECEDENT VARIABLES

1. Value patterns
2. Situational patterns
3. Measures of aptitude, knowledge, and skill
4. Measures of personality and interest
5. Measures of physical energy and capacity
6. Past individual and organizational performance

INDEPENDENT VARIABLES

Performance in the organization, including:

1. Decisions made
2. Ratings of performance
3. Measures of attitude change
4. Objective measures of performance
5. Tenure and mobility
6. Work patterns
7. Leader behavior dimensions
8. Sociometric ratings
9. Learning behavior

illustrated to prospective administrators within the same problem context used to identify their own.

3. The influence of certain course content of field experiences on preparation of administrators could be gauged more accurately and modified more appropriately.

4. More precise discrimination could be made between sets of factors more tractable to modification (the preparation process) and those less tractable, viz., certain personality factors (the selection process).

More extensive consideration of potential use of the system will be made in later sections; the forgoing is merely suggestive of the impetus for the two prototype programs which will be described in the next section. These prototype programs were developed according to the logical principles that systems conceptualizations seem to provide. In fact, in their development these programs were viewed as operational tests of these ideas as they pertain to the administrator as information processor, to instructional systems, and to a system for articulating various media. The prototypes, then, were conceived as necessary, although not sufficient, tests of the ideas set forth in this section.

The following section first describes the operational requirements of a computer-based program for running administrative problems. Then, two prototype problems are described and pilot runs analyzed. The "Administrative Situation I" or CAMP program is intended to trace the information search patterns of administrators as they conceive a problem and formulate a recommendation about a school building addition. Administrative Situation II, called the SAM program, is concerned with the selection of an elementary school principal. In contrast to the former program, the SAM design focuses on the value patterns by which administrators interpret and weight information they receive rather than request. Or, in terms of their programming characteristics, the information processed in the CAMP interaction is under the control of the subject (the student acting as superintendent); control of information presented to the subject in the SAM interaction, on the other hand, remains with the experimenter-instructor. These distinctions should be borne in mind as the separate programs are described in greater detail in the next section. The acronyms CAMP and SAM, in what follows, came to be used with little explicit thought for conveying content meaning. For convenience, the first may be regarded as "Computer Articulated Media Program" and the second as "Selection of an Administrator Materials".

REQUIREMENTS AND CHARACTERISTICS OF A COMPUTER-BASED PROGRAM

From the supposition that an administrator's decision-making behavior is shaped by the information he obtains, a diagnosis of that behavior can be made on the basis of the information processes he employs. To trace those processes requires that the administrator be observed in a situation where he engages in seeking information, retaining or discarding it, combining it with other information, and generating some determinants of a decision. The means to record and examine these processed in accurate, explicit ways has been the quest of much research on administrative behavior of which more will be said later. Generally speaking, many obstacles to diagnosing administrator information processes could be overcome by an efficient and precise system for simulating an environment in which an administrator could search for information. The attempt to overcome these obstacles both confronted and contributed to the conception of the CAMP program since developing such a system necessitated the following:

1. A data base - creating or adapting a well-ordered information storage and retrieval context in school administration.
2. A set of operations (Program) - specifying, in the form of a definite pattern of rules, the ways to store and to retrieve information in the data base.
3. A language system - adopting or adapting a vocabulary and syntax for composing the instructions and queries by which the program operates on the data base.
4. A stimulus incident - providing a situation or problem designed to evoke a series of information processes in the subject's behavior.

It should be emphasized at once that a computer is not essential for developing the system just described. In principle, paper and pencil or a card set could be used to produce similar results although it might take several months to generate a moderately complex program. But for accuracy, complexity, and numerous other advantages a computer is required to make operation feasible. The four necessities noted, then, were confronted with a computer facility in mind.

The Data Base

As in other areas of behavioral science, the primary difficulty in adapting an information storage and retrieval context in educational administration is one of the orderliness of content. Information retrieval usually implies a context of more or less organized information in which can be located data which will be relevant in the context and thus will function more or less effectively as "answers" to queries. Insofar as educational administration lacks a comprehensive theory, it also lacks the orderliness of a uniform scheme for classification and retrieval of information. For the CAMP program, one of the more orderly task areas of educational administration was selected as a starting point to evolve a useable data base. The task area of school plant has a rather extensive classification scheme developed by the Council of Chief State School Officers. This classification served as a point of departure for the data base eventually developed.

It was immediately apparent that a problem situation in one task area of administration usually involves one or more of the other task areas, i.e., interrelatedness is a functional property of administration. Hence, it was necessary to overcome the tendency to simplify the boundary conditions of the problem area by making them too narrow. Thinking of task areas as functions within a total organizational system was most helpful at this point.

A Set of Operations (Program)

The program or set of operations necessary to manipulate the information in the data base consists of a set of rules which indicates the prerequisite conditions for retrieving and displaying any given piece, or combination of pieces, of information. One approach to developing the desired set of operations is to identify the terms, their referents, and the hierarchical structure used by humans in processing information. These identifications can be made by examining the behavior records of subjects working in relevant problem situations. These records can consist of think-aloud protocols, intensive post hoc interviews, check lists, forced choice questions and whatever other sources may aid in understanding occurences in the class of problems under investigation. Hopefully, one is then in a position to begin to write a program compatible with terms and structures used by the subject as he solves a problem or designs alternatives for a decision.

A Language System

Ideally, such programs written in natural English would be easy for subject matter experts to handle. However, English or any other natural language tends to be imprecise, and the program must be written in an artificial language--a fully precise language especially constructed for this purpose or one currently available to computer users such as FORTRAN, BASIC, or LISP. An attempt was made to develop a special procedural language but was abandoned largely because of its awkwardness in handling informational environments of the size being simulated. With limited problems and small computers this type of "tree language" may be quite useful and therefore a short description is included as Appendix D.

A Stimulus Incident

In order to identify and replicate the information processing "programs" employed by administrators, a problem situation in the task area of school plant planning was selected. The objective here was to evoke and describe the information search and use patterns engaged in by "experts". The particular incident selected for the CAMP program was designed to maximize information search activities. It is further described in the sample printout later in this section.

The CAMP Program

The information search and use patterns of expert administrators were examined to provide the basis for a "model" program. This involved several phases of activity. A consultant in school plant planning assisted in selecting a stimulus incident and in supplying data from a comprehensive survey of an actual school system. Next, several administrators and professors of administration acted as subjects in a "hand simulation" effort to test the crude model. By incorporating the results of concomitant work on a small computer, a viable method for identifying the information processing patterns of educational administrators was determined.

The original crude model of information categories was expanded and refined and a search was undertaken for an existing language system that would handle the many variables employed in the problem. The system adopted for use was the Mentor language system (embedded in LISP), developed at Bolt, Beranek, and Newman, Inc.

The revised model was used with other professors and educational administrators in order to test the usefulness of the categories of information and to make the model as encompassing as possible. It was found that the problems identified by the several subjects whose thought processes were being modeled were different problems or at least different views of the same problem. An additional difficulty was that of displaying information in such a way as not to suggest ways of formulating the problem to the subject. To overcome this problem, a method of using "files" was developed.

The use of "files" with the Mentor language system was devised for several purposes. The first purpose was to overcome the difficulties of form for storing the information for the data base. There exists presently no available computer language system that can handle so-called "free" or natural English information queries. In other words, the purpose became one of providing a retrieval form that allowed easy access without "giving away" too much unsolicited information. Another purpose centered on the need for a classification scheme that would be easy for a variety of users, yet, at least minimally standard. The "files" structure employed in the CAMP program is shown in Figure 15. It consists of four major "drawers" (School Plant, Finances, Community Population and Program and Staff) and a number of "sub-dividers" such as Taxes or Bonds. These terms are, in turn, sub-divided into "folders" (Sales and Elections). The items in these "folders" contain specific data on the school system, division, or building being administered. In many ways this approximates the secondary nature of information that the typical administrator obtains.

Conditions for Interaction. The subject sits at the teletypewriter, which serves as a remote terminal for the computer storing the CAMP program. He is given a brief orientation to the role he will play as a new superintendent in a rather unfamiliar school district. Beside the keyboard is a small desk with an indexed set of numbered maps and tables which he may be directed to use. The subject is instructed to do two things: (1) type the word CAMP, and (2) signal the attendant when he feels ready to make a

Figure 15

CAMP FILE SYSTEM

COMMUNITY-POPULATION

- Population
  - Trends
  - Present Population
  - Boundary Lines
- Enrollment
  - Past Enrollments
  - Present Enrollment
  - Projections
- Housing
  - Trends
  - Proposed
  - Saturation

SCHOOL PLANT

- Location and Site
  - Location of School (s)
  - Area of Site(s)
  - Future Plans
- Physical Structure
  - Type of Construction
  - Age
  - General Condition
  - Improvements Underway
- Building Capacity
  - Gross Floor Area
  - Pupil Capacity
  - Number of Pupils Being Served
  - % of Building Utilization
  - Last Year's ADM
- Classrooms
  - Number of Classrooms
  - Number of Classrooms Being Used
  - Condition of Classrooms
  - % of Classroom Utilization
- Transportation Services
  - Bussing Policy
  - Number of Busses
  - Number of Pupils Bussed

PROGRAM AND STAFF

- Policies
  - Selection
  - Assignment
  - Autonomy
- Personnel Data
  - Profiles
  - Salary Schedule
  - Attitudes
  - Program Experimentation
- Curriculum Areas
  - Present Program
  - Anticipated Changes
- Supporting Services
  - Health
  - Food
  - Transportation
  - Special Education
- Organization for Instruction
  - Vertical
  - Horizontal
  - Changes (considered)

FINANCES

- Taxes
  - Rates
  - Total Valuation Per Pupil
  - Voting Record
- Bonds
  - Sales
  - Elections
  - Capacity
  - Indebtedness
- Capital Outlay
  - New Buildings
  - Site Acquisition
  - Building Additions
  - Funds Available
  - Future Plans

final decision. All other instructions are controlled by his interaction with the computer program. In fact, when he concludes he may type his decision directly on the print-out form after punching an auxiliary key. The "files" contained in Figure 15 are opened to him as he requests information to facilitate any need for recall. An actual performance of a subject is illustrated on the next four pages. The only change made from the original print-out is the use of capitals and lower case letters to indicate computer responses. The subject's queries are typed in all capital letters.

Example of Performance. The sample chosen for illustration contains most of the forms of responses that subjects receive. There are a number of routines (e.g., check errors, correct spelling, and request reasons for questions), that were not called for in the following (Subject B) print-out.* The print-out to follow reveals the process of information seeking which preceded subject's decisions.

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*Another print-out (Subject A) in Appendix E suggests more of these routines. Appendix E also contains samples of the tables used although no maps are included.

CAMP

It is Christmas recess and you are in your office ready to confront an immediate and pressing decision. The question at hand concerns the following recommendation that the late superintendent had prepared for the impending board meeting:

> It is recommended that Homewood Elementary School be continued as a center for kindergarten and grades 1 through 6. And that necessary renovations and an addition be made to provide space for approximately 450 pupils by September, 1966.

As you seek the information necessary to arrive at a decision and adopt a course of action you have access to staff members who are especially knowledgeable in the following areas:

*Community-population *
*Finances *
*Program and staff *
*School plant *

Please direct your questions to any of these experts by typing the words of phrases which appear between the asterisks. With whom do you wish to start?

COMMUNITY-POPULATION

Hello, delighted to hear from you. Hope I can be of some service. As is the case in many other communities, changes in * population * have had a noticeable effect on school * enrollment *. Moreover, due to the uneven density of * housing *, these changes are not entirely similar for all areas of the district. What can I give you more information about?

POPULATION

Population * trends *, * present population * totals, or * boundary lines *?

Please indicate whether you desire information about the district (D), only the elementary school buildings (E), or just the Homewood School (H), by using the appropriate letter D, E, or H after the term or terms indicating the information you desire.

For example, if you wished to know the number of classrooms in Homewood you would type in, "Number of Classrooms H", but if you wanted to know the number of classrooms in all the elementary buildings you would type in "Number of Classrooms E" and so on.

TRENDS H

Although we don't keep separate figures for population according to each elementary school attendance area you might get a picture of this from viewing housing trends and Homewood's enrollment trend in conjunction.

ENROLLMENT

I have the information organized according to * past enrollment *, * present enrollment *, and future * projections *. What would you like?

PROJECTIONS H

See Table 7.

PAST ENROLLMENTS H

See Table 6.

HOUSING

Would you like information about * housing trends *, * proposed * housing and/or housing * saturation *?

HOUSING TRENDS H

Housing units in the Homewood area have been built at an increasing rate each year since 1955. From 1955 to 1960 the units increased from 12/yr. to 22/yr. During 1960-65 period the rate has gone from 22 to 27 units.

SATURATION H

90 more units will bring this area to saturation.

PROPOSED H

75 units in next 2 years.

ENROLLMENT

Do you want to know about * past enrollments *, * present enrollments *, or * future projections *?

PROJECTIONS D

	LOW	HIGH
66-67	4,303	4,778
68-69	4,330	5,215
70-71	4,339	5,613

SCHOOL PLANT

Hello, glad you called. Hope I can help you. The elementary schools in the Washington district vary as to * location and site *, * physical structure *, * building capacity *, * classrooms * and * transportation services *. What would you like to know?

Remember to indicate the information you desire by using the word or words between the asterisks.

BUILDING CAPACITY

I can tell you about * gross floor area *, * pupil capacity *, * number of pupils being served *, * % of building utilization *, and * last year's ADM *. What would you like to hear?

Remember to use "D", "E", or "H" to indicate the appropriate information desired.

LOCATION AND SITE

I can tell you about * location of school(s) *, * area of site(s) * and * future plans * for the location and site of school building(s). What information would you like, if any?

Remember to use "D", "E", or "H" to indicate the appropriate information desired.

LOCATION OF SCHOOLS D

Open Map No. 3.

PROGRAM AND STAFF

Hello, very glad you called today. As you are probably finding out we have a fine team here and I'm sure we will be able to work well together to keep our system on the upswing. Of course at the heart of the system are the wonderful teachers we have with us. And so it will be my privilege to tell you what I can about our staff * policies * and general * personnel data *. Further, if you would like, I can tell you something about the job this staff does in terms of our * curriculum areas * as well as the * supporting services * provided for the program. Where would you like to start?

CURRICULUM AREAS

I think the most appropriate information at this point would simply be a description of the curriculum areas as they exist in the * present program * or as they might be affected by * anticipated changes * in the program. What information would you like?

Remember to use "D", "E", OR "H" to indicate the appropriate information desired.

ANTICIPATED CHANGES H

No changes are explicitly planned, however, some staff members have urged movement toward some program innovations.

FINANCES

Welcome aboard, Skipper. If you would like to know anything about * taxes *, * bonds *, or * capital outlay * I'm your man.

CAPITAL OUTLAY

I can give you the estimated costs of * new buildings *, * site acquisitions *, and * building additions * as well as the amount of * $ available * and * future plans * for capital outlay.

SCHOOL PLANT

Do you want information about * location and site *, * physical structure *, * building capacity *, * classrooms *, or * transportation services *?

LOCATION AND SITE

Do you want to know about *location of school(s) *, * area of site(s) * or * future plans *?

FUTURE PLANS D

Open Map No. 6.

Homewood, Roosevelt, Lane, Hilldale, and Riverview will be continued in use and 13 new elementary centers will be built.

Retain 2 junior high schools and add 5 new ones. Retain 1 high school and add 3 new ones.

(At this point subject declared readiness for decision).

Analysis and Implications. The several kinds of analyses that might be made on the print-out protocols of CAMP subjects are discussed more fully in a later section of this chapter. A few indications of these analytical patterns will serve here as illustrations. Examining the sample print-out previously presented (Subject B) and the one by Subject A (See Appendix E) the contrasts in performance are immediately evident. These contrasts include differences in

1. the amount of information sought;
2. emphases on information levels, sequences, detail;
3. systemic versus building approaches;
4. decisions on the recommendation.

A clearer indication of the difference patterns may be obtained by referring to the synopses of sample protocols in Figure 16. Subject A focused his search on the Homewood building, information associated with construction and the financial condition of the district. Subject B, on the other hand, demonstrates a systemic approach, a search for more and varied information at both building and district levels and a return to some files for additional information. The differences in their decisions, presented in Figure 17, are also interesting along with the reasons supporting them.

Purposes at hand would not be served by evaluating the correctness of these sample protocols. What is revealing in these and other subjects' performances is the support evinced for studying administrative behavior by analyzing their "patterns" of information-processing. Some subjects, for example, made their decisions and cited information as determinants

Figure 16

SYNOPSES OF SAMPLE PROTOCOLS OF CAMP

SUBJECT A

- School Plant
    - Building Capacity
    - Pupil Capacity H
    - Physical Structure
    - Age H
    - Location and Site
    - Area of Site H
    - General Condition H
    - Building Capacity
    - Location of School D
- Finances
    - Bonds
    - Capacity D
    - Elections D

SUBJECT B

- Community-Population
    - Population
        - Trends H
        - Enrollment H
        - Projection H
        - Past Enrollment H
        - Housing
        - Housing Trends H
        - Saturation H
        - Proposed H
        - Enrollment
        - Projection D
- School Plant
    - Building Capacity
    - % Building Utilization
    - Location and Site
    - Location Schools D
- Program and Staff
    - Curriculum Areas
    - Anticipated Changes H
- Finance
    - Capital Outlay
    - Funds Available D
- School Plant
    - Location and Site
    - Future Plans D

Figure 17

SUBJECT A: PROBLEM FORMULATION AND DECISION

I disagree with the recommendation for the following reasons:

1) Site is too small (8 acres) for additional building expansion.
2) Too many of internal facilities are minimal for the educational program.
3) An addition to increase capacity from 280 to 450 pupils would be too costly in terms of benefits received; although additional classrooms would be provided, the special areas would be inadequate in quantity and quality.
4) Older part of building is 42 years of age; building may have to be abandoned for instructional purpose in the near future.

I would recommend a new elementary center of 15 to 18 classrooms and needed special facilities be constructed on a site that would be located to provide relief to the Homewood building and the overcrowded building (136% util.) north of it. There is sufficient bonding capacity (over $5 million) and the district's record and support for bond issues has been excellent. I would recommend that the minimal facilities in Homewood be improved to better meet program requirements.

SUBJECT B: PROBLEM FORMULATION AND DECISION

Projected enrollments and population trends in the Homewood area appear to justify the recommendation to rennovate the Homewood building. Future plans for elementary building do not include one in likely proximity to Homewood. The recommended space for 451 pupils is adequate in terms of future enrollment predictions and in fact would allow some space, possibly, for experimentation. Financial funds are available. No program changes seem to be planned which would affect building utilization.

I would concur with the recommendation.

from categories that they had never queried. Others reinforced Ward Edward's contention that the decision-maker usually seeks too much information.(7) Data on experience and educational background of the subjects suggested some fruitful directions for developing correlations. On the basis of his CAMP performance a trainee's use of what Simon calls "generators" and "testers" of problem formulations may be discerned.(8) That is, if the trainee generates his conception of the problem in terms of, say, finance then other information is gathered to test the feasibility of this approach; if generated in terms of emphasis on program change then the testing will be made against building adequacy, staff attitudes, finances available, and so forth. This preference for "generators" as a dependent variable may yield significant correlations with certain antecedent independent variables such as experience, courses taken, and others from the list in Figure 14. Although the prototype trials on CAMP are merely suggestive, there is preliminary encouragement to follow up these notions.

Interviews following the subject's interaction with the CAMP program provided a number of suggestions for improvement. Chief among these suggestions was that of an opportunity for practice and orientation to the teletypewriter equipment. None of the subjects had ever experienced this type of "computer conversation" previously. Some subjects mentioned the constraints imposed by the CAMP file system while others said they learned a classification scheme in the school plant task area. Largely, the comments were concerned with the apprehension about the mechanical system; all subjects confirmed the administrative "realism" of the experience.

The SAM Program

After prototype experimentation with the CAMP program, a second problem situation was developed with information processing objectives in mind. The first objective was to test another administrative task area in the computer-based system for purposes of comparison. The second objective was to explore further research possibilities when control of information was in the hands of the investigator instead of the subject. In this latter instance it was felt that observing the ways in which different subjects interpreted and weighted information supplied to them would be of much importance. The second problem was also designed to permit comparison of several media as channels for the same information. Such a design might indicate the effects that different media have in terms of instructional implications.

Initially the MENTOR language was tried with the second problem in order to take advantage of the conditional statements facility possessed by that language system. The character of the problem, as well as its setting, was somewhat related to Administrative Situation I, i.e., the selection of a principal for the Homewood Elementary School described in CAMP. A more complete description, along with some of the problem materials, is presented in Appendix F.

Once again the information processes elicited in a particular administrative behavior problem (selecting personnel) were analyzed and simulated to develop the model for the SAM program. The program itself was simple in intent although complex in development. The intent was to depict the trainee's value patterns when interpreting and weighting information as he selected an elementary school principal. The subject received a job description for a given school, the usual set of candidates' credentials and letters of reference, and personal presentations from the candidates for the position. By means of this information the subject was asked to rate and rank the candidates for the position.

The SAM program provided the subject with "pieces" of information, which the investigators could manipulate, about each of four candidates (Abels, Baker, Clark, Dixon). Each of these pieces of information was associated with one of the four major criteria for selection, namely, experience, administrative skills, staff relationships, and personal image.

After the subject made an initial few ratings for each candidate, subsequent information provided to him was conditioned by the magnitude of these ratings. For example, if the subject at some point rated candidate Baker at _6_ (on a 1-10 scale) on the experience criterion, then the next piece of information supplied was designed to increase or decrease that rating. The subject was regularly asked to restate or revise his estimate of each candidate's qualifications. In this way, differences in the subject's interpretation and weighting of specific pieces of information could be assessed.

The preliminary design of the problem and attempted use of the MENTOR language revealed excessive complexity in information handling and control. Another language, TELECOMP, proved to be a more suitable vehicle for accomplishing the objectives set forth for the SAM program. TELECOMP also lends itself to the use of conditional statements and, more importantly, it is tractable to on-line editing and modification of a program. That is, immediate changes may be made in programs as they are in operation according to the desire of the instructor or as the result of diagnostic revelation of error by the language system itself. Some of the features of this program can be better illustrated through a brief description of an experimental run. A print-out of the interaction being described is illustrated in Figure 18.

Conditions for Interaction. The subject is introduced to the problem situation through the materials shown in Appendix F. He is instructed to use the criteria as described there and the rating scale provided. Next, the subject activates the computer interaction by typing "start"; the computer directs him to read the biography sheet of each of the four candidates. He is then asked to assign an evaluation on each criterion to each candidate. When he has completed rating all four candidates on all four criteria through the information supplied by the vita sheet, he receives information from the nominating letters and rates the candidates again. Following this evaluation the information supplied subsequently is conditioned by the level of rating given to each candidate. For example, in Figure 18 where the subject has rated candidate Abels at a level of 5 on the criterion of experience, revision was made upward following statements from letters which indicated support for the individual's experience.

These statements varied from mild to intensive support in order to influence the subject's rating of the candidate in a predicted direction. Hence, if the subject's early ratings tended to be low, more heavily weighted (i.e., strongly supportive) information would be supplied than if the early ratings tended to be high. Conversely, if the early ratings were

Figure 18

ILLUSTRATIVE INTERACTION: SAM PROBLEM

Read Abels' vita and evaluate on following 4 criteria: Abels' Experience (AE), Abels' Administrative Skills (AA), Abels' Staff Relations (AS), Abels' Personal Image (AP)

Abels' Experience = FIVE (5)
Abels' Administrative Skills = FOUR (4)
Abels' Staff Relations = SIX (6)
Abels' Personal Image = SEVEN(7)

....

Read Abels' Nominating letter and evaluate as before.*

AE (2) = 5
AA (2) = 4
AS (2) = 7
AP (2) = 5

....

Revise any ratings on basis of following excerpts about each candidate from letters from several of their superiors.

Mr. Abels has had excellent opportunities at Howard to work with extensive curriculum revision. Included were scheduling, teaching materials, instructional grouping, and grade organization.

AE (3) = 6
AA (3) = 5
AS (3) = 7
AP (3) = 5

Program revision at Howard was aided by experimental effort sponsored by State Department of Education. Mr. Abels worked with them and university specialists in what proved to be an unusual experience.

AE (4) = 7
AA (4) = 5
AS (4) = 7
AP (4) = 5

Abels handled responsibility and authority delegated to him quite well. He suggested several items for improving in-service education here.

AE (5) = 7
AA (5) = 6
AS (5) = 7
AP (5) = 5

---

* In actual performance trials an abbreviated query form was used requiring the subject to merely strike one number in evaluating the candidates. This form, as below, is shown in the print-out material included in Appendix F.

high, the subsequent pieces of information provided were of a lower weight and only mildly supportive.

Examples of Performance. The information processes under study in the SAM program required an overall design for control and presentation of information related to the selection problem. The design that was evolved incorporated several dimensions along which research might be pursued; this potential is discussed in a later section. In the SAM program the design provided a matrix for specific pieces of information which could be manipulated to influence a subject's judgment in predicted directions. Figure 19 shows the arrangement devised for prior weighting of information (by source) in order to "move" a subject's evaluations in a predicted direction. The letter "S" indicates a similarity of information that would furnish little or no basis for different evaluations. Indices of 1 and 2 represent relative intensities of information supporting a higher evaluation for a given candidate on a specific criterion. Thus, Clark's nominating letter stresses his experience while Baker's emphasizes personality strengths. Dashed spaces indicate relative absence of criterial information for that candidate.

The individual items of information that were used in the program were adapted from research of rather sound validity and reliability.(9,10) Criterion items were conditionally supplied according to their relative intensity to influence a subject's evaluation upward or downward. Some of these items and their relative weights may be found in Appendix F.

In addition to the type of printed information that was used to assist the subject in making his evaluations, information coded in audio form,

Figure 19

SAM PROGRAM
DESIGN FOR CONDITIONAL INFORMATION PRESENTED TO SUBJECT

	SOURCES	CANDIDATES			
		ABELS	BAKER	CLARK	DIXON
Criterion 1 Experience	Biography	S	S	S	S
	Nominating Letter from Professor	-	-	1	-
	Statements from Previous Superintendent	2	-	-	1
	Candidate's Own Statement	2	-	-	-
Criterion 2 Administrative Skills	Biography	S	S	S	S
	Nominating Letter from Professor	-	-	-	1
	Statements from Previous Superintendent	1	2	-	-
	Candidate's Own Statement	-	2	-	-
Criterion 3 Staff Relations	Biography	S	S	S	S
	Nominating Letter from Professor	1	-	-	-
	Statements from Previous Superintendent	-	1	2	-
	Candidate's Own Statement	-	-	2	-
Criterion 4 Personality	Biography	S	S	S	S
	Nominating Letter from Professor	-	1	-	-
	Statements from Previous Superintendent	-	1	-	2
	Candidate's Own Statement	-	-	-	2

i.e., audio tape recordings of the candidates' voices, and filmed interviews with the candidate were also included as stimulus materials. When the subject arrived at the point in the selection process where he might wish to interview the candidate, he was presented with the information from the film or tape. Although these films and tapes cannot be reproduced here, substantially the same information which they present is contained in the Letter of Candidate found in Appendix F. In fact, the effect of similar information presented by various media (print, tape, film) is one of the researchable dimensions included in the design of the SAM program.

Following these presentations by the candidates, the subject again rated each candidate and then listed them in rank order of preference. The average interaction time for subjects on the SAM problem was about 20 minutes from start to finish. At the conclusion of the interaction the investigators would "call up" from the recorded sequence a print-out and graphic plotting of the fluctuations in ratings for each candidate, for all candidates on any given criterion, and for each single candidate on any given criterion. Thus, summaries and averages as well as the sequence of influence by the individual pieces of information could be obtained. Illustration of these summaries may be found in Appendix F.

Analysis and Implications. Preliminary gross analyses of the records of a limited number of subjects run in pilot fashion on the SAM program indicate significant variation in the weighting and valuing of the same information supplied to them. Although the primary concern in developing these prototype problems centered on a Computer-Based System as a facility for research and instruction, it is apparent that even the pilot tests yielded results with interesting implications for the direction of research and development activities. Further development of SAM and similar programs would seem to lend itself to a framework for investigating weight attached to certain kinds of information and the value preferences associated with criteria of administrative performance. Limitations of prototype runs precluded systematically varying the medium for encoding the same information and assessing its effect although several media were employed.

Even cursory examination of subject's performance print-outs on the SAM program reveal important differences in the information value patterns used by administrators. A sample protocol of Subject A's performance is presented in Appendix F followed by protocol synopses of both Subjects A and B. Comparing these synopses suggests that although the final rank ordering of candidates are the same the fluctuations of ratings vary considerably. The influence of the same information, therefore, may be traced to preference about criteria for personnel selection (not the personnel themselves) or to various weightings associated with the pieces of information stemming from diverse sources.

The SAM program, or similar ones, illustrate one method of measuring values in educational administration. The potential of such programs for improving research and instruction in educational administration is discussed at greater length later in this chapter.

Dissemination Seminars

During the 1966-67 academic year developmental work continued on the computer-based system and the administrative problems described above.

Revising sections of the data base and testing the usefulness of other computer languages indicated that large-scale efforts are needed for broadening the basic system and devising a matrix out of which a variety of new administrative problems could come. Nonetheless, the prototype problems of CAMP and SAM, with some moderate revisions, seemed suitable for demonstration purposes particularly as they might illustrate the *processes* involved in preparing and using a computer-based system for research and instruction in educational administration.

Three regional seminars for professors of educational administration were held in the spring of 1967. These seminars were hosted by UCEA institutions in Philadelphia, Chicago, and Salt Lake City to facilitate attendance from all regions of the nation. The sponsoring universities and schedule of seminars were:

University of Pennsylvania	April 3-6
University of Utah	April 17-20
University of Chicago	May 8-11

The host universities were also asked to invite interested professors from other disciplines, and personnel from state departments and school systems. The objectives of the portion of the seminar dealing with AMP's computer-based system were:

1. To present background information on computer-based systems.
2. To explicate the rationale underlying the AMP computer-based system.
3. To provide professors an opportunity to interact with computers about decision problems in administration in a hands-on, "on-line" setting.
4. To assess the potential of computer-based systems for research and instruction in education.

5. To assist professors in gaining skills and concepts needed to program decision problems of their own for use with graduate students.

6. To test the feasibility of using short-term experiences to enable non-technologically oriented professors to write programs in their own subject specializations.

The format of the seminars for participants selecting that aspect of the program dealing with computer-based systems closely paralleled the sequence of topics discussed in this chapter. The first day and following morning were spent in an exposition of a computer-based system and interacting with the CAMP and SAM problems as well as several specially developed demonstration programs. The afternoon of the second day was devoted to group sessions for generating research problems and instructional materials in educational administration utilizing the unique capabilities of a computer-based system. Pairs and individuals then engaged in off-line programming of sections of the problems. Opportunity was provided for every participant to input his part of the program directly to a time-shared computer via a remote teletype terminal and dataphone connection. The use of Bolt, Beranek and Newman's TELCOMP computer service (Cambridge, Mass. and East Orange, N.J.) allowed each participant to "debug" (i.e., receive immediate error diagnostics for incorrect statements, if any, and make appropriate corrections) some part of his program and thus acquire a feel for the precision and specificity required for this type of work, especially as it might contrast with ordinary lecture practices and classroom discourse.

At each seminar, the keen enthusiasm displayed by a substantial number of participants was evidenced by the extra effort put into on-line programming during the evening and early morning hours of the second and third days. A more wide-spread interest in interacting with a computerized administrative situation was observable in the personal involvement and group discussions involving almost every person exposed to the SAM and CAMP problems.

The final seminar session with these participants comprised reactions, appraisals, and suggestions concerning the use of computer-based systems for research and instruction in educational administration. Within the acknowledged limits of generalizing from a relatively brief experience, a number of implications about these processes were commonly cited by the seminar groups.

1. A positive acceptance of the potential of computer-based systems for improving preparation programs in educational administration was demonstrated.

2. It is feasible for professors with little or no familiarity with computer technology to develop sufficient skill in short-term experiences to write programs in their specialized area.

3. Learning the requirements of computer formats and languages may be less difficult for professors of administration than learning to formulate exact specifications, objectives, models and the like for the administrative situations to be taught, researched or both. Ambiguous computer programs, unlike classes and research projects, do not "run".

4. Proposals for various types of cooperative efforts by professors in UCEA institutions for developing and exchanging computer-based problems need to be examined.

5. Professors are receptive to participation, and involvement of their students, in developing a repertoire of administrative problems in education.

6. The use of commercially available computer services with text

manipulating languages such as TELCOMP, BASIC and JOSS gives wide accessibility to professors for pursuing these developments. This is true even at universities whose campus computers are devoted largely to the quantitative service of engineers and natural scientists.

CONCLUSIONS AND PROJECTIONS

In recapitulating some of the developmental work discussed in previous sections, a rationale can be employed which recasts these notions in terms of their "exploratory research" characteristics. That is, the strategy adopted for developing specifications for articulated media was based on some systems conceptualization. These concepts centered on (1) the administrator as an information processor in an information-processing system, (2) information-systems theory of instruction, and (3) a systems approach to media and materials.

Utilizing a computer base for presentation, control, and analysis, prototype administrative problems were developed. These prototype situations constituted something of a set of "working hypotheses" derived as logical consequents from the systems conceptualization. The prototype problems were subjected to two kinds of tests. First, it was postulated that the experimental use of administrative problems in a computer-based system would indicate a necessary and fruitful new potential for identifying and analyzing information processes used by decision-makers. Second, it was contended that the use of such problems and methodology would be found acceptable and useful by non-technologically oriented professors.

While these "working hypotheses" were confirmed during the course of the project, a virtual reservoir of experimental hypotheses and developmental directions was formed. Rather than catalogue these individually, the import of these projections will be treated according to their potential for (1) research, (2) instruction, and (3) evaluation.

Research

One of the primary requisites for the advancement of knowledge in any field would seem to be the observation and recording of data relevant to the processes central to that field. It is reasonable to assume that central to an understanding of the process of administration is an understanding of the behavior of administrators themselves. This assumption granted, some very grave obstacles to advancing such study present themselves and center around the following:

1. Observability. Most of the information processing and decision making of an administrator is covert, and hence, directly unobservable. The seriousness of this common condition for advancing knowledge for this particular field lies in the fact that these covert processes, which may be most crucial to any study of administrative behavior, are extremely difficult to infer from observable data. It may well be the case that many similar administrative actions are taken for conflicting reasons. The earlier discussion in section two concerning the responses to the SAM problem revealed exactly this situation. Administrators had similar rankings of candidates for a principal's position even though they weighted the criteria for these rankings differently from each other.

2. Comparability. Those records that were and are being left by administrators are not only sketchy but often are not comparable from one administrator to another since they are not recorded in any standard form. Again, the earlier discussion of the difficulty of deriving a data base and set of accompanying information retrieval rules is relevant here. It was necessary to examine the problem-solving approaches of many administrators so that multiple paths to similar information could be built into the system. The result, partially achieved in CAMP, is the ability to compare responses of different subjects, in terms of their sequential pattern, level of generality and specific pieces of information sought and ignored.

3. Research methodologies. The two major traditional data gathering processes employed in the study of administration, namely, questionnaires and on-the-job observations, seemed to have serious methodological flaws. Perhaps, part of their trouble can be attributed to the opposite extremity of their positions on a continuum along which the ultimate criterion performance of an administrator can be identified. On the one hand, on-the-job observation is an attempt to document the ultimate behavior of interest with as little interference of artifacts as possible. On the other hand, actual performance is reflected only through after-the-fact verbal reports of the actors themselves. While these verbal reports, if treated as performance protocols in and of themselves, could be interesting reflections of subjects' perceptions, attitudes, skills, and knowledge. They may be quite removed from actual administrative performance itself. Further discussion of these points may be in order.

Data gathered via questionnaires are dependent upon the administrator's awareness of what may be acquired habitual tendencies and covert processes. By definition, these are usually outside the realm of a person's awareness. Further, since many decision-making studies point towards the irrationalities of choices, the assumption that self-awareness of internal reasoning would explain decisions seems somewhat inadequate. Studies of cognitive dissonance and selective perception also seem to indicate a probability of extreme distortions in questionnaire data based on individual recall.

Again, data gathered via on-the-job observation would seem to suffer from the distortion brought about by the insertion of a foreign element, the observer, into the system to be observed. In other words, data deemed valuable primarily because it is thought to reflect "natural" behavior may be misleading. The behavior reflected may, in fact, be quite unique to an observing situation.

Furthermore, in the absence of strong theoretical frameworks, the individual biases of the observers tend to increase the variability of this type of data, an undesirable characteristic for objective studies. Finally, lacking well developed theoretical rationales, it is difficult to evaluate any data gathered via this means since one is uncertain as to the extent of the main effects of variables which are analyzable from situation to situation and to the impact of the specific context being observed.

One way to control for this latter type of ambiguity is through repetitions resulting from a duplication of situations with systematic variation of an independent variable. Another method would be through the canceling effect of quasi-experiments. Unfortunately, systematic duplication is rarely feasible in social situations and "noise" in most administrative situations is so complex as to be almost uncontrollable by quasi-experiments. Hence, the unique effects of different specific contexts remain an important barrier to a theoretical understanding of administration.

A computer-based system, as illustrated previously, can correct some of these deficiencies by:

1. Eliciting observable responses in decision situations.
2. Gathering responses in comparable form.
3. Being able to repeat and control presentation of problem situations including the systematic variation of independent variables.
4. Being able to describe and produce problem environments similar to those which will ultimately surround practicing administrators.

Other research benefits to be noted in using a computer-based system are the advantages which accrue from large-scale subject data storage, multiple complex analyses of the data available and the speed with which these analyses may be made. In fact, when necessary or useful, these analyses may be made while the subject is still engaged in interacting with the computer. However, there are benefits of a different order which, although not as immediately apparent, may be of great importance for the future.

The development of the relatively simple data file structures and information retrieval rules used for these simulated exercises may be quite similar, in many respects, to the effort that will be needed to create a computerized "command and control" system for future practitioners. Similarly, what is learned from these simulated exercises regarding more effective modes of man-machine interaction will be quite pertinent to the context in which future administrators will work. The time seems to be approaching when schoolmen, as well as weapons system commanders, will have remote consoles and displays at their disposal. At that time, conceptual developments which have kept pace with hardware potential will be most welcome.

Instruction

At least one of the major tasks of an instructor is to modify the dispositions of students in some ultimate field environment. To this end, he is not only interested in how well the student does on examinations and on written essays but ultimately how well he behaves as an administrator. To date, it has not been clearly demonstrated that there is any strong connection between success on measures of a student's academic behavior and success on measures of administrative behavior. Further, there does not appear to be a striking similarity between the two behaviors. As a result, it is difficult for the instructor to evaluate the extent to which he is contributing towards the development of better administrators, as opposed to better scholars.

Ideally, it would seem helpful to the instructor to be able to observe the responses of his trainees to conditions similar to the ones with which he will ultimately cope. If a student's strengths and weaknesses in a given problem situation could be revealed, the need for mastery of concepts prerequisite to knowledge of more applied advanced skills for coping with that situation might also be revealed. These undoubtedly would be clues to possible curriculum modifications. Further, the record of specific actions taken by a student in specific problem settings may reveal groups of students with diverse learning patterns who might profit in unique ways from different instructional strategies.

The context-oriented actions of students may allow the instructor access to a vivid, clearly structured common ground for communication. It is felt that this type of opportunity is a very attractive one for attempting to "meaningfully" explicate theoretical frameworks. In other words, in explaining abstract concepts the instructor might refer back to common examples of a specific nature and to the data resulting from the student's own behavior.

Finally, instruction in educational administration might be improved if data related to the results of execution of various instructional patterns, e.g., curricula sequences, type of reinforcement and guidance, form of presentation, and so on, were gathered in a systematic manner. Thus far the discussion has focused on advantages to the professor of educational administration. However, having observed the personal involvement of individuals placed in the CAMP and SAM situations, in which direct interaction with other persons was lacking, it would seem in order to examine these advantages from another perspective, namely the administrative student.

The means by which an administrator-in-training can practice his craft in a non-threatening setting are almost nonexistent. That is, there are few opportunities for him to be coached in information-processing approaches and decision-making behavior which will be quite similar to on-the-job behavior. This is in marked contrast to most other applied professions, such as, medicine, dentistry, engineering, and aviation.

The administrative trainee lacks a means to "apply" his theoretical knowledge in a situation in which a wrong move will not have dire consequences for himself, other persons or physical resources. A non-threatening setting on the other hand, may motivate the trainee to explore various patterns and strategies for the application of knowledge, which, in other situations, he might not otherwise attempt. Perhaps equally important is the opportunity to observe a problem situation unfold, be able to stop it, repeat it and observe the consequences of different choices of action. "We believe that, if applied administration is to be taught at all without destructive effects upon creativity, it must be taught as an exercise in the postulation of alternative values (often of opposites), in the systematic assessment of conditions affecting a given value system, and in the prescription of preferred actions for those who accept the values . . . . Taught in this way, administrative science could be regarded as a worthy part of education in 'the liberal arts.'"(11)

Ideally, then, it is hoped that under non-threatening conditions, with opportunities to repeat run-throughs of the same problem situations, with a two-way interaction or dialogue between the student and a problem situation, with access to the coaching of experts and/or veterans, the prospective administrator will be able not only to strengthen his technical skills of information processing and decision-making and gain a better understanding of his own behavioral tendencies under various types of pressures, but that he will also be able to gain a firmer grasp on his own individual philosophy. Specifically, he should be able to observe some of the operational effects of pursuing his individual set of values. That is, he may have the opportunity to decide whether, in the light of what will happen to people and things in his system if a particular value policy is adhered to, whether or not he will want to implement that policy at all and, if so, to what degree.

Of interest here is a trainee being able to explore his own feelings with the objective of overcoming the gulf which might exist between his individual intellectual values and the utility of "actual" results which might be produced by their implementation. Perhaps, if this individual exploration is protected by a non-threatening environment, the trainee will be able to admit his own "errors" or "inconsistencies" far easier than he would under the open fire of some part of the system or community where he eventually begins his "real" administrative behavior. With a firmer reasoned belief in his own values, he may be less vulnerable to the winds of fashion or fear in the future.

There are some other advantages which are gained via a computer-based system which are a result not so much of the properties of simulation as from the technological aspects of the system itself.

To begin with, due to its rapid decision making capability, a computer appears to be an ideal control agency for articulating the use of various media. In CAMP and SAM the subject was often directed, by the computer, to other sources of information, e.g., films, maps, printed text and tape recordings. It appears to be a minor step, given present equipment, to automate this articulation.

Another advantage of some practical import is the ease with which stored material of the sort dealt with in this study can be modified. Material can be dropped out or added, in any random sequence, with complete control over the sequence to be displayed to the student or subject. Further it is quite simple to change words, names and parameters within the material. This should prove quite a useful property for institutions which share materials with each other and wish to adapt each program to the institution's own unique characteristics. In fact, given some common computer systems and languages these institutions may be able to simultaneously use currently updated instructional materials as well as engage in collecting cooperatively, research data about administrator performance.

The last instructional advantage, again while not immediately apparent, may be most important. The potential referred to is that resulting from engaging students in programming simulated administrative problem situations. There are many reports in the CAI literature(12) of the changes in student subject matter achievement attributed to having formulated some of that subject matter into a computer program. Among these changes are an appreciation for detailed specifications of complexities and contingencies of causal chains, the same causal chains which in normal discourse are often passed over with a phrase or two. There are also reports of an increase in sensitivity to generalized patterns and algorithms. While there is little to warrant generalizing these findings to administrative students there is equally little to indicate that these speculations would not hold. Finally, having students engage in computerized teaching-learning situations would, hopefully reduce the apprehension with which many present administrators approach computers generally.

Figure 20

THE POTENTIAL OF A COMPUTER-BASED SYSTEM

RESEARCH PURPOSES	INSTRUCTIONAL PURPOSES
1. To produce knowledge about the process of educational administration. e.g., what types of "cognitive models" do administrators use? How do they weight and value information? What values and probabilities of outcome influence courses of action?	1. To individualize learning of certain Knowledge in Educational Administration. e.g., To diagnose trainee's "cognitive models." To determine trainee's weighting and valuing of information. To teach theory in terms of own behavior. To provide tutorial instruction for remedial or special purposes.
2. To produce knowledge about instructing and preparing educational administrators. e.g., Relevance of instructional situational performance to on-the-job behavior. Diagnosis of differential learning patterns. Effectiveness of various instructional strategies.	2. To create instructional situations more appropriate for acquiring selected skills. e.g., Opportunity to apply conceptual knowledge in a non-threatening environment. Situations that allow exploration, interruption, repetition.
3. To produce knowledge about the design and development of man-machine systems for future administrative command and control systems. e.g., To test effectiveness of various file structures and retrieval rules. To test effectiveness of information displayed in various forms (prints, tapes, films, etc.). To evaluate various interactive languages and devices for communicating. To assess factors related to individual and group situations (team efforts).	3. To provide articulated instructional materials for preparation programs. e.g., To construct improved integrated materials for complex simulations. To allow rapid display of information in appropriate form to the student. To incorporate continuity and feedback through conditional and stochastic processes.

Evaluation

Much of the previous discussion of the instructional advantages gained from simulated problem situations is equally relevant to evaluation since instruction and evaluation are merely different sides of the same coin in computer-based systems. Simulations which sample many professional problem areas could well serve as aids in either selecting courses for administrative students or as vocational counseling experiences for students contemplating educational administration as a career. These same simulations, modified to increase their difficulty perhaps, could be used as periodic self-evaluation instruments for practitioners. Diagnostic results and summaries could be made available only to the professional himself. Similarly, simulations could be developed which sampled a subset of problem difficulties encountered in a particular group of school systems e.g., urban inner city civil rights problems resulting from a history of communications breakdown between community and centralized system. The performance of a candidate in these simulated situations might prove useful in determining the appropriateness of his skills for the problems to be faced by that system's future superintendent.

SUMMARY

The primary objectives of AMP called for a large-scale and long-range plan for instructional materials that would incorporate emerging concepts in: (1) educational administration, (2) learning and instructional theory and (3) educational media. Systems analysis concepts were described as among the major ones commonly emerging in all three areas. Some explication of these concepts was offered as well as their relevance for the conceptualization of:

1. the administrator as an information system;
2. the educational organization as an information processing system; and
3. instruction as a technologically based information system.

The requirements for an articulated media program which could be built on these systems concepts was offered as well as some indication of the adequacy with which they could be met by a computer-based system as the vehicle for simulated administrative problem situations. Two such prototype problems were described. CAMP (Computer Articulated Media Program) was intended to trace the information search patterns of administrators as they conceive a problem and formulate a recommendation about a school building addition. SAM (Selection of an Administrator Materials) was concerned with the selection of one of four candidates for an elementary school principalship.

The results of subject interactions with the prototype problems were discussed as well as the nationwide dissemination seminar activities designed to introduce professors of educational administration to computer-based systems. Recommendations developed by the professors at these meetings were presented. Finally, the unique properties of computer-based systems for use as vehicles of instruction for administrators-in-training along with research on instructional strategies and administrator processes were projected.

In conclusion, it is felt that the activities described in this report, though merely constituting a small advance, nevertheless foreshadow the possibilities of radical changes in preparation programs for educational administrators. Taking into account the increasing reliance, and even necessity in American society, for using complex technological systems, as well as the sharp displacements presently ocurring in education, it would seem that the use of computer-based systems discussed in this report, far from dehumanizing education, would increase the challenge to the individual and allow him to explore situations which ultimately, only human judgment can resolve. It is the intent of this report to present one possibility for seeing that the judgment used by the human is a well-prepared one.

FOOTNOTES

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CHAPTER FIVE

Summary and Conclusions

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SUMMARY

The major objective of the Articulated Media Project (AMP) was to design new prototype instructional materials for use in programs to prepare educational administrators. The Project was based in large part upon certain assumptions concerning perceived inadequacies in traditional approaches to the design of "reality-oriented" instructional materials in educational administration. These perceived inadequacies related to past tendencies not to view "reality-oriented" instructional materials as a part of a larger system of instruction during the design process. Thus, the attainment of re-enforcing relationships between and among such elements in instructional systems as purpose, concepts, media, and "reality-oriented" administrative situations during the design of new prototype materials was one of AMP's major concerns. Of the various elements just noted most attention was given during the Project to the attainment of relationships between concepts and "reality-oriented" administrative situations in the prototype materials designed. It was assumed that if instructional materials could be developed, which did clearly join these elements during the design process, professors would find it easier to relate theory and representations of "reality-oriented" administrative situations more effectively when using the prototype materials.

In addition to the major objective of creating prototype instructional materials which articulated administrative concepts and representations of "reality-oriented" situations in educational organizations, AMP had two other objectives which deserve notice: (1) to project potential uses and extensions of the specific prototype materials created and (2) to explore and set forth some of the implications of the AMP experience for the future development of instructional materials in educational administration. The content of this chapter will be organized in relation to AMP's objectives. The first section will summarize information concerning the various types of instructional materials created. Potential extensions and uses of the prototype materials created will be set forth in the second section. The final section will examine implications for future efforts to develop instructional materials to prepare educational administrators.

Prototype Materials Created: Process and Content

Three different types of prototype materials were developed in the Articulated Media Project. A management bargaining game in the area of professional negotiations represented one type. Materials designed to generate and give meaning to a number of conceptual frameworks related to planned change constituted another type. The final type was represented in a set of two computerized simulated administrative problems based upon systems concepts. The major medium for presenting the bargaining game was the printed word, while computer programs, films and tapes were the principal media for communicating the computerized simulated problems. The printed word, supplemented by overlays for overhead projectors, was the major medium used to convey prototype materials on planned change. The detailed information presented in Chapters Two, Three, and Four on the various media and materials developed will not be briefly summarized.

A Management Bargaining Game in the Area of Professional Negotiations. After documenting the marked need in Chapter Two for more effective instructional materials in the area of professional negotiations, John Horvat describes the value of management games for preparing administrators generally and the significance of these games for preparing educational administrators specifically. He then provides detailed information on the scope and content of a bargaining game in the area of professional negotiations which he developed as a part of AMP. The types of information gathered and organized on the "Rockville School System," which serves as the setting for the game, are set forth. For example, data on the "Rockville" community, the "Rockville" teachers' organization, the size of pupil and staff enrollments, the educational attainment of professional staff members, the salary schedule in effect, the number and length of class periods, the nature and extent of school finance and related matters help to create background for the game. The issues to be negotiated in the game are also delineated, and these include such matters as dues checkoff, salary increase, increased hospital and medical benefits, duty free lunch periods, free preparation periods, class size limitations, sabbatical leaves, grievance procedures, discharge procedures, and sick leave policies. Statements which describe the positions taken in the past by the teachers' organization and by the school board on the various issues to be negotiated are provided along with confidential memoranda which are to be supplied to negotiators on each side.

The author projects three different time periods in which the bargaining game can be used. The "short" form requires two to four hours of negotiation sessions, plus another four hours for supplementary instruction and discussion. The "intermediate" form is designed to be used in two to four day workshops and seminars. A "long" form, which is designed for two to four week workshops or a full-quarter or semester use in universities, is also provided. The longer forms present opportunities to negotiate a larger number of issues, to examine issues in greater depth in instructional situations, to investigate specific aspects of the negotiation process, and to engage in intensive study of related literature. The negotiations teams can be structured in various ways, and the author describes examples of different ways of structuring negotiating groups.

Detailed suggestions for forming negotiation teams are delineated, including special uses of questionnaires to establish teams. Supplementary materials of various kinds are provided for instruction. These include guidelines for rating the final contract settlements reached by teams; a modified form of Bales Interaction Process Analysis to rate, compare, and analyze negotiation behavior in gaming situations; and a 14-item, post-session questionnaire designed to develop data on the perceptions which participants have concerning the negotiation process they have experienced, the residual disagreement still in effect, issues seen as most important, and the perceived realism of the negotiation situation. Forms to measure the amount of time required to arrive at an agreement and the cost of the agreement to the "Rockville" district are also provided.

Prototype Materials on Planned Change. Loren Downey, who developed prototype instructional materials related to planned change, describes in Chapter Three the design processes used as well as the products achieved. Some of the difficulties encountered in the process of designing instructional materials are first outlined. One major difficulty encountered, for example, was the inadequacy of existing theories related to planned change, particulary in regard to their capacity to inform practitioner-students in administration about the dynamics of change processes. The search for a conceptual framework is described, and the reasons set forth for selecting a communication model as a basic framework from which to develop materials related to organizational change are delineated. The various dimensions of the communication model are described, and the implications for changing student behavior in classroom situations or in field settings are noted.

The analysis achieved through the communication model leads the author to a definition of a number of constraints which, in his judgment, affect the development and use of instructional materials on planned change. Among the constraints identified are: available research and theory leave many critical factors related to planned change unexamined, neglected, or unexplained; patterns of knowledge are silent on matters of directing and implementing change; research by scholars in discrete disciplines leave many confounding variables untreated; and most professors of educational administration have not had experiences as change agents but, rather, have tended to come from educational organizations where the emphasis has been upon maintenance.

Due to the major constraints surrounding the problem of planned change, Downey concludes that a special type of instructional materials is needed. The special materials required need to have qualities which, in the author's judgment, will generate the content prerequisites necessary for the design, development, and use of more traditional, transmission-type materials. Therefore, prototype materials and a process are developed which are designed to help practicing and prospective administrators in learning situations to locate, integrate, and apply conceptual knowledge related to planned change. The process delineated is shaped in large part by three classes of conceptual frameworks related to different dimensions of planned change. One class is designed to facilitate organizational analysis and the identification of action implications vis-a-vis planned change. These are based upon such concepts as Talcot Parson's "Functional Imperatives of Social Systems" and Richard Carlson's "Typology of Service Organizations". Another group of materials are designed to bring about better understandings of the forces influencing behavior in organizations. These are based upon role theory, concepts pertaining to normative structures, and related conceptual formulations. Another portion of the materials highlights variables which the educational administrator can manipulate to influence change. Among the concepts central to developing materials of this type are: power bases, organization and power, typologies of change, and units of change.

The author argues that instructional materials development, if it is to be effective, must take into consideration major constraints surrounding the use of the materials. The argument underlies the materials and, more basically, the processes he has developed. In effect, the processes developed represent a joint search on the part of student-administrators and professors for meaning and understanding with regard to planned change in organizations.

A Prototype Computer-Based System. Paul Cullinan and Robert Ruderman used systems concepts as the basis for designing and developing a prototype computer-based system. These concepts were judged by the authors to have significance not only for the future practice of educational administration, but also for the learning theory and educational technology needed to provide a foundation for the prototype materials to be created.

In Chapter Four the authors introduce the rationale on which the computer-simulated problems are based by describing a simple system and demonstrating its relevance to the administrator as an information processor, to organizations as information processing systems, and to instruction viewed as an information system. The administrator is conceived by the authors as "a unique node in a communications framework or information system, where inputs to him are various forms of secondary information, outputs from him are decisions or problem solutions, and goals center upon the regulation and adaptation of an organization devoted to the education of students." The computer-based system developed and the problems simulated stem from this basic assumption about the role of information in administration.

After having set forth a rationale, Cullinan and Ruderman describe the characteristics of the computer-based facility and provide detailed information on the computer-simulated problems designed and developed. The major requirements for a computer-based system are treated first. These include information storage and retrieval systems specifically oriented to school administration; a definite pattern of rules and procedures to ensure the orderly storage and retrieval of information about school administration; a language system to enable the program to operate in relation to the storage and retrieval system; and a problem designed to activate information processing on the part of practicing or prospective school administrators. Descriptions of how these various requirements were met in the design of the computer-based system are provided by the authors, and detailed information is set forth in regard to the two administrative problems simulated.

The first simulation developed by Cullinan and Ruderman deals with a school plant expansion problem. The content of this simulation, which was designed to provide trainees considerable leeway in the kinds and modes of information which they would seek before making a decision vis-a-vis the school plant expansion problem, is delineated. Descriptions of the behaviors of students and professors in experiencing the computer problems are also given. The authors show how the profiles of trainees, who have experienced the simulated problems, may be analyzed to indicate contrasting performances in relationship to such variables as the amount of information sought; emphasis upon information levels, sequences, and details; orientation towards a search for information at the building as contrasted with the school system level; and the nature of the decision to solve the problem.

The second simulated problem, which was designed to enable the investigator or professor rather than the trainee to control information, involves the selection of a school principal. The possibilities for studying different ways trainees weight the same information in making decisions about the principal to be selected is provided. The authors also make clear how films, audio-taped recordings, and written statements were developed to provide trainees the same information and point out that the differing modes of presentation can be used to study the impact of the same type of information on decision making when it is conveyed through differing media.

How the second simulation was actually tested with a small group of trainees is clarified by the authors. In the test situations, for example, trainees were provided certain amounts of information in a controlled fashion and were asked to rate four different candidates for the principalship with regard to such criteria as experience, administrative skill, staff relations, and personal image. As additional information was presented, additional ratings were required on the part of the subjects. The authors demonstrate that the protocols of trainees can be used to identify and analyze the substantially differing values which shaped the rating decisions made.

The results of regional seminars in which professors of educational administration experienced both of the simulated problems and heard explanations of the rationales and requirements of computer-based systems are set forth by the authors. For example, the discussions held at the seminars suggested that professors of educational administration perceive and accept the potential of computer-based systems for improving preparatory programs. The seminars also demonstrated that professors, in fairly short time periods, can gain the skills needed to write simple computer programs on specialized problems in educational administration. That there is a need on the part of UCEA institutions to develop and explore cooperative endeavors which would utilize computer-based facilities was made clear. Discussions also revealed that such languages as TELECOMP, BASIC, and JOSS are widely available to professors even in universities where computers are devoted largely to providing quantitative services for engineers and natural scientists.

The authors demonstrate inadequacies in such traditional techniques of studying decision making as are found in interviews, questionnaires, and observations. They also make clear that the computer-based system offers potential for overcoming some of the inadequacies found in previously used techniques. In addition, a number of projections are made concerning the potential use of the computer-based facility for studying administrative behavior and the learning of this behavior. It is in relationship to the learning of administrative behavior that the computer-based system represents a special kind of prototype instructional material in educational administration.

Uses and Extensions of the Prototype Materials

All of the prototype materials created have already had limited uses in the form of "field tests." Plans are being implemented to ensure more widespread uses of the prototype materials created. In addition, a range of potential extensions and adaptations of the materials has been projected without specific plans for immediate implementation. Plans for expanding the uses of existing materials will now be set forth and potential extensions of the prototype materials, as these are described either implicitly or explicitly in previous chapters, will be summarized.

Negotiations Game. The bargaining game on professional negotiations developed by John Horvat is now being made available for widespread instructional use in cooperation with Charles E. Merrill Books, Incorporated. The first edition of the game is being distributed with plans for additional "field tests" designed to provide further feedback on the uses of the materials in instructing administrators. Within the next six months to a year it is anticipated that a revised and more permanent edition will be made available based upon the feedback obtained in the projected field tests. Initial assessments suggest that thousands of student-practitioners in educational administration will have opportunities to learn about professional negotiations as well as to practice and develop actual skills in this complex area through experiencing the negotiations game and using the special instructional aids which supplement it.

Suggestions with regard to special gaming adaptations and ideas for a number of audio-visual materials which would extend, supplement, and enhance the instructional potential of the bargaining game on professional negotiations are offered by John Horvat. Adaptations in the use of the game are projected in various forms and include the following:

(1) Variations in the role of the superintendent. Since there is as yet no uniform practice established concerning the superintendent's role in negotiations, various assumptions about this role can be utilized in playing the game. Among the roles the superintendent can play are that of fact finder, discussion leader, and negotiator. The negotiator and other roles, which in some districts are being played by personnel other than the superintendent, can also be delegated to special staff members in gaming situations.

(2) Special impasse situations. Impasse situations provide particular challenges to negotiators. Some states have laws and regulations to deal with situations of this type. The game can be adapted to deal with impasse requirements and to the conditions in different states affecting impasse situations.

(3) Insertion of special tasks related to negotiations into gaming and instructional situations. One insertion, for example, might involve participants in the task of converting agreements reached informally into final contract documents. In the process, participants would confront such potential problems as indistinct commitments, unintended benefits, "weasel-worded" clauses, and clearly illegal agreements. Another insertion could require negotiators to develop and present press releases orally or in writing at various stages of the negotiations. For variation, joint and separate presentations by the parties involved could be practiced. Still another example of an insertion suggested by Horvat would introduce "crisis situations" into the negotiations situations. Thus, the negotiator representing the teacher organization might be informed by telephone, for example, that a strike was definitely imminent. Insertions such as those just noted would be used to create opportunities for specific learnings to be developed.

(4) Extensions of the game into specific content areas. All gaming decisions have financial implications and can in part be evaluated from this perspective. Thus, suggestions for submitting decisions to school finance classes for analysis and for obtaining feedback are offered. In addition, Horvat suggests that school finance specialists might usefully participate in certain stages of the negotiations process. Laws of different states vary with regard to professional negotiations. The author makes suggestions about the development of "Attorney General's" reports on the legal aspects of the negotiations decisions. Involvement of law students in negotiations sessions is also set forth as another alternative.

In addition to suggesting adaptions in the game, Horvat projects ideas for audio-visual and related supporting materials as supplements to the game. Among the suggestions offered for further developmental work are the following:

(1) A series of tapes depicting various examples of group and individual behaviors in professional negotiation settings. Illustrations of such behaviors include the following: (a) the "fight-flight" syndrome which is typified in part by anger and withdrawal behavior; (b) frustrated and successful attempts to assume leadership in negotiation sessions; (c) stages of development in intergroup relations; (d) clear-cut styles of behavior with demonstrations of how these styles offset negotiations; and (e) productive and non-productive disagreement and conflict situations.

(2) Actual examples of tape-recorded negotiations sessions with commentary and analysis by behavioral scientists designed to advance understandings of the behaviors.

(3) Taped descriptions of "emergent practices" on aspects of collective negotiations.

(4) Video or audio taped lectures on various aspects of negotiations.

Extensions of Prototype Materials on Planned Change. Several extensions of the materials on planned change logically follow from the work done by Loren Downey. Among these are the following:

(1) Further extensions of the range and numbers of materials available for use. The materials already developed are in the process of receiving more extended tests both with educational administrators in school district settings and with students in classrooms. Such experience will undoubtedly

lead to an increase in the number of materials related to planned change and to refinements in existing materials.

(2) More specific and elaborate descriptions of the processes developed by Downey which are designed to help practitioner-students learn to understand and cope with change. As already noted, considerable information has already been gathered by Loren Downey on the processes and materials developed. This information has not yet been organized and presented for general use. The organization and presentation of the information would be of value to professors and others interested in using the prototype materials on planned change. Plans to provide a detailed account of the process developed are now being formulated by the author.

(3) Publications to make available the materials and processes for general use. After refining existing materials, developing additional ones, and describing in detail the process and rationale for using the materials, a publication based upon the work would be in order. Such a publication should extend the uses of the prototype materials and processes created.

Extending the Use of the Computer-Based System. The two computerized simulated problems developed by Paul Cullinan and Robert Ruderman are now stored at Bolt, Beranek and Newman, Incorporated in Boston, Massachusetts. The uses of these prototype materials and the computer-based system which underlie them may be extended within an immediate or longer-range context. Some immediate ways of extending the use of these materials are the following:

(1) Activation of a special task force of professors to make

recommendations about how personnel in universities might make immediate use of the simulated problems. The task force might make recommendations, for example, with regard to computer equipment and languages which would facilitate use, ways in which interested personnel might utilize the computerized administrative problems in instructional situations, and guidelines for professors desiring to use the procedures developed by Cullinan and Ruderman to create their own simulated problems and computerized-based systems.

(2) The development and implementation of a proposal which would utilize inter-institutional resources to carry out additional research and development along the lines suggested by Cullinan and Ruderman. Such a proposal would capitalize upon professor talent in a number of universities and take advantage of the large and diverse graduate student population available to serve as problem solvers in universities through inter-institutional cooperation. The proposal would concentrate upon selected research and development ideas set forth by Cullinan and Ruderman in Chapter Four.

While it is clear that the computer-based facility developed by Cullinan and Ruderman represents a means for achieving new frontiers in educational administration, the long-range uses of the facility can only be described in general terms at this point. A few of the longer range and more general uses are listed:

(1) New knowledge of administrative behavior and decision making. The special advantages inherent in the computer-based facility, which make it superior to other data gathering methods, have already been described.

The two computer-based problems which have been developed so far are designed especially to study such matters as the role of information and the role of values in decision making as well as the impact of different media to transmit the same information to decision makers. By capitalizing on opportunities provided by the computer-based system and refinements of it, scholars will have special tools which should enable them to achieve new research directions and new knowledge in educational administration.

(2) New approaches to the instruction of educational administrators. The computer-based facility leaves a trace of the decision-making and information processing characteristics of persons interacting with the facility to solve problems programmed.

Therefore, a new type of "raw" data is available for immediate feedback and use in instructional situations. The new type of data is more extensive and represents a more accurate trace of the decision process than data heretofore available. Therefore, it offers professors and students new bases for teaching and learning.

In a more basic sense, the facility provides a new mechanism for studying the variables which affect the learning of administrative behavior. Special instructional interventions can be developed and tested with students. Consequently, the impact of such interventions upon the learning of decision-making behaviors can be studied. This capacity of the computer-based system offers special opportunities for those interested in developing and assessing the adequacy of new approaches to instruction.

(3) Special opportunities for studying variables affecting administrative decision making and for using understandings developed to improve the

selection of prospective administrators. From what has been said, it will be evident that the computer-based system, when used within a framework of inter-university cooperation, offers special advantages from the standpoint of obtaining and storing data on large samples of trainees. It seems reasonable to believe that these advantages will eventually make it possible to establish clearer understandings than are not available of the relationship of different styles of decision making to the characteristics of students, on the one hand, and the relationship of special characteristics of students to their potential for demonstrating and learning decision-making behavior, on the other. The establishment of such relationships would have important implications for diagnosing student capabilities, for developing more effective processes for selecting candidates for administrative preparation, for counseling students about entry into administration, and for diagnosing learnings needed after students have met selection tests and entered programs.

CONCLUSIONS

Conclusions may be formulated in relation to various facets of AMP including its products, its organization and processes, and its implications for the future development of instructional materials in educational administration. The remainder of this chapter will be devoted to conclusions relevant to the three facets of AMP just noted. These conclusions are based upon an analysis of experience and upon feedback obtained informally rather than upon carefully and systematically developed data. They are, therefore, subject to the usual limitations that attend such analyses.

Generalizations Concerning the Prototype Materials Produced

1. New prototype materials for preparing educational administrators were produced in AMP. It is clear that there are now prototype materials for use in preparatory programs which were not available before AMP was undertaken. The materials singly or *in toto* have several new characteristics. First, such new media as computer programs, for example, were used for the first time in developing instructional materials to prepare educational administrators. Second, the materials are different from those prepared previously in that a larger number of media were developed and projected during the design process in a more integrated fashion. In the negotiations game, for example, such media as the printed word, videotapes, audio-recordings, telephone, and films were all developed or projected as a part of the total package of materials. Finally, as the next generalization will show more fully, the AMP staff gave more attention during the design process to the relationship between reality-oriented administrative simulation and administrative concepts than have earlier approaches to materials development.

2. The AMP effort demonstrated that prototype instructional materials for preparing educational administrators can be developed which articulate administrative concepts and reality-oriented situations during the design process A major concern of AMP, as already noted, was to design prototype materials in ways that would ensure re-enforcing relationships between concepts or conceptual frameworks, on the one hand, and simulated administrative situations, on the other. While certain difficulties were encountered in dealing fully with this concern, it is

clear that new patterns were developed which reflect re-enforcing relationships of a general as well as a specific nature. These patterns can be seen both in the design processes used by AMP and the products achieved. A few illustrations should be sufficient to document the point.

The extended classified and annotated bibliography on professional negotiations and the various aspects of the administrative situations inherent in the bargaining game are related generally. The game provides opportunities, for example, to experience a range of interpersonal relations during the negotiations process, and the portion of the annotated bibliography dealing specifically with interpersonal relations is generally related to relevant administrative situations built into the game as well as experience to be generated by it. The attainment of more specific relationships is left to professors and students in instructional situations. The projected plan for recording simulated negotiations sessions, for having behavioral scientists use concepts to analyze behavior expressed in the sessions and, then, for making available recordings by these behavioral scientists for instructional use is another somewhat more specific example which illustrates a way in which the relationships reflected in the products designed and projected by AMP are reinforced.

A careful reading of previous chapters should make clear that concepts were beginning points in materials design and that they shaped design processes in a substantial fashion. For example, how concepts and conceptual frameworks shaped the materials developed by Loren Downey on planned change is illustrated in Chapter Three. Or, to illustrate the point further, it would seem to have been difficult, if not impossible, for Cullinan and

Ruderman to develop the computer-simulated problems without the use of systems concepts, particularly as these bear upon information processing. The more general systems concepts set forth in their rationale as well as the more specific concepts related to technical problem areas (e.g., the design of information retrieval systems) both shaped the products achieved. Re-enforcing relationships may be seen in both of the computer-simulated problems developed. Thus, systems concepts are inherent in the computer-simulated problem which provides trainees freedom to seek the kind of information they desire to make decisions as well as in the simulation which enables the professor to control information inputs.

Underlying AMP was the assumption, as already noted, that if re-enforcing relationships between concepts and simulated administrative situations could be achieved in materials design, professors would find it easier to relate theory and "reality" effectively when using the materials created. It should be made clear that AMP did not purport to gather empirical evidence on the validity of this assumption. Even though the assumption may be held on logical grounds, further study will be needed to test the position empirically.

3. The products achieved in AMP are diverse and, therefore, provide a range of patterns for developing prototype materials. The diversity of AMP's products can be highlighted in various ways. One evident expression of diversity is found in the levels of generality represented in the concepts which helped shape the various materials. The concepts and simulated administrative situations inherent in the bargaining game, for example, focus more upon the one important problem area of professional negotiations. The

concepts which shaped the prototype materials on planned change, on the other hand, are more general in that they might potentially be applied to change as represented in professional negotiations as well as to other areas such as curriculum change or organizational change. The systems, decision-making, and information concepts implicit in the computer-simulated problems represent potentially an even more general application in that they or adaptations of them could have relevance for a variety of change as well as maintenance problems and processes in educational administration.

Other characteristics illustrate further the diversity represented in the materials. The computer-based system, for example, places a much stronger emphasis upon the development of prototype materials designed to improve instruction through research and knowledge development than do the other materials. The work on planned change underlines the importance of various constraints which affect the use of instructional materials, and the development achieved emphasizes a concern for the process of using prototype materials. The bargaining game and the supplementary materials related to it represent the strongest emphasis upon the importance of designing materials for use in specific and differing time periods.

The diverse patterns represented in the materials, while having some limitations, offer some advantages at this stage in the development of educational administration. These differing patterns provide a potentially larger number of opportunities for experimentation with different uses of materials and for different approaches to their development. In addition, there may be certain functional values accruing from the fact that the interests and values of professors differ substantially. Because of these varied interests and values, diverse sets of materials will likely have a larger outreach than more standardized ones would have had.

4. Evidence obtained so far suggests that the prototype materials developed in AMP will have widespread use; further, additional developmental work directly related to AMP's accomplishments will likely take place. Numerous inquiries received by UCEA concerning the availability of the negotiations game attest to the widespread interest in the actual use of the materials. Work achieved by John Horvat in recent months has made it possible to make the game available through the cooperation of Charles E. Merrill Books, Incorporated. It is anticipated that thousands of students in universities and practitioners in school districts will experience the materials already available. Explorations are now underway to determine if additional audio-visual materials which were projected in AMP to supplement the game might be developed in greater detail and produced for use.

The evidence gathered by Ruderman and Cullinan at the dissemination seminars and presented in Chapter Four shows a substantial interest on the part of professors in capitalizing on opportunities provided by the computer-simulated problems. There is also evidence of an increasing interest in the problem of planned change and in having better instructional materials for use in this area. Efforts are now underway, as noted earlier, to extend and improve uses of materials related to the computer-simulated problems and planned change.

Generalizations Concerning Organization and Processes

As noted earlier, AMP represented a new organizational approach to the production of instructional materials in educational administration. Rather than relying upon the efforts of professors and graduate students to produce materials in settings where multifarious functions are being performed, a staff was assembled to work full-time during most of the project's duration at the single task of designing prototype materials. Therefore, it would seem important to understand this new approach and to generalize about the processes used and the problems encountered. In generalizing about AMP's processes, an effort will be made to highlight implications that have special relevance for educational administration, even though it is undoubtedly true that generalizations concerning the organization and processes of AMP could be made which would have implications for development projects in education generally.

1. A major advantage of AMP's organization was that it provided talented individuals substantial time and freedom to engage in the investigative and conceptual processes so necessary for developmental work. Effective development work in any field requires a mastery of relevant knowledge and the time and opportunity to re-order and apply the knowledge to problems which have their locus in a context of practice. In educational administration special challenges are encountered in being able to master and order the knowledge necessary for development work. The inter-disciplinary character of the field makes special demands on individuals who aspire to be developers. Moreover, universities traditionally have not rewarded investigative processes oriented toward the development of "reality oriented," prototype materials to prepare educational administrators, and there are few other institutions which reward and encourage this type of development activity. In view of

these conditions, it would seem that AMP's manner of organization, which did provide individuals substantial time in a context external to a specific university setting, met a special need and facilitated the unfolding of the study, thinking, and inventive processes necessary for developing prototype materials.

2. A number of problems were encountered during the conduct of AMP which have implications for future efforts to develop instructional materials in educational administration. Initially, it was anticipated that AMP staff members would be able to engage in an integrated development effort in the sense that all project activities would be guided by common foci and conceptualizations. For several reasons this anticipation was not realized. First, conceptualizations of educational administration sufficiently encompassing and heuristic to serve the interests of all staff members were not discovered or developed immediately. Secondly, it became evident that staff members did not have compatible levels of aspiration, similar styles in regard to group as contrasted with individual development activity, equal tolerance for ambiguity, or the same values concerning the most important areas in administration for developing prototype materials. Because of limitations in existing conceptualizations and the diverse value and interest patterns of staff members, closely integrated and interrelated efforts on the part of staff members were not achieved.

Another problem of considerable significance was the uncertainty and ambiguity which staff members endured, particularly during early phases of the Project. Developmental activity oriented toward the invention of new prototype materials, as already noted, involves the disciplined mastery of bodies of knowledge and the re-ordering of this knowledge in new contexts to serve new purposes. Since such activity, if successful, must be creative, specific prescriptions for defining the manner or scope of operations cannot easily be provided. In this regard it would seem that development experience has been less formalized and explicated than has research experience. For example, general guides have been set forth in textbooks to guide research in education. However, there are as yet no such textbooks which can serve educational developers. This condition poses special challenges to those who are responsible for administering development projects.

One other illustration of a problem encountered during the conduct of AMP might be noted. This had to do with the public-private aspects of the Project. In obtaining consultant help from members external to the staff it was not easy to make judgments, particularly in the early formative stages, about personnel who could be helpful or about the specific times when they could be most helpful. In addition, it became evident that interested professionals external to the AMP staff often had different expectations than those on the staff concerning the nature, extent, and timing of materials to be produced. Achieving fruitful and functional relationships between AMP staff members and others interested in the Project posed problems, then, especially during the early stages.

Implications for the Future

Clearly, improvements in the preparation of educational leaders in the future will be essential and are being viewed more and more as an important national objective. Since AMP has opened up some new approaches to the preparation of educational administrators, the implications of these approaches for improving preparatory programs need to be projected and examined.

1. The development, testing, and distribution of instructional materials represent an important and viable strategy for improving programs to prepare educational administrators. It is widely recognized among sociologists and anthropologists that technology is both an important expression as well as a bearer of change is social systems. Instructional materials represent an important aspect of technology in preparatory programs. Therefore, inventing new and improving existing materials represent important strategies for strengthening the preparation of educational administrators. These strategies offer potential for widespread impact in part because of the special advantages which result from differing technology. It is easier, in other words, to diffuse technology within given social systems than it is to diffuse less tangible aspects which result from culture.

The experience gained in AMP and plans underway for extending the use of AMP's products have implications for supporting and strengthening the improvement of preparatory programs through a strategy of developing, testing, and distributing instructional materials. These implications go beyond the materials produced in AMP which have obvious and immediate uses. For example, the special organizational context represented in UCEA has important potentialities for diffusing instructional technology to professors. This is true because UCEA has established a formal and national communication network to all professors of educational administration and has developed "institutes" to display materials to professors and to orient them in their uses. Diffusion patterns should be taken into consideration in future efforts to develop, test, and distribute materials.

2. If the strategy of materials development and testing is to be pursued in the most effective fashion, substantial time, money, and personnel will be required for the task. The scope of investment in educational development generally is still somewhat limited, and there may well be a tendency to under estimate the significant amount of input needed to attain impactful development. Certainly, if the challenge of designing and testing instructional materials for preparing educational administrators is to be met effectively, amounts of investments will have to increase substantially and different expectations will need to be developed. In industry there are many cases, for example, where more than a decade and a hundred man years have been expended to develop a single drug. Or, to take another example more related to the problem at hand, millions of dollars have been invested by the federal government in instructional materials and technology for improving programs to train military leaders. The same scope of investment will be needed to meet the challenge of upgrading programs for preparing educational leaders. A substantial portion of investments will need to be allocated to train personnel to undertake desired development.

3. The establishment of a National Development and Resource Center for the Preparation of Educational Administrators could facilitate the development and testing of new instructional materials and could help ensure effective design and diffusion activities. If the scope of development activities designed to create new materials is to be increased, then new organizations which can effectively display talented and scarce personnel resources need to be projected. It is for this reason that

some of the major features of a projected National Development and Resource Center for Preparing Educational Administrators will now be briefly described.

While the projected Center would have a central staff, most of its personnel would be decentralized in the sense that they would be located in selected universities, in a limited number of recently established educational mergers and complexes, and in other development agencies such as regional laboratories. The central staff of the center would be related to all the decentralized units and would be responsible for general planning, coordination, and diffusion activities. Personnel in universities and related agencies would have responsibility for specific developmental activities and for providing major assistance in field testing and "de-bugging" materials. Educational mergers would provide technical help with regard to selecting and developing media to convey materials, would engage in some development activity, and would produce and distribute the materials for use.

The Center would have selected program emphases which would guide its efforts. Some of these emphases could be based upon the work achieved in AMP and others might go beyond this work. Illustrative emphases to suggest somewhat more clearly the work of the projected Center will now be offered.

One program emphasis could be based upon the computer-based system developed by Cullinan and Ruderman. This system could provide the basis for a substantial five-year program of research and development related to materials development. Ideas set forth in Chapter Four suggest potential content for such a program.

The prototype negotiations game developed by John Horvat and the materials on planned change developed by Loren Downey suggest another program emphasis. More specifically, systems of instructional materials could be developed which would be concerned with such important problem areas as professional negotiations and would include a range of media, materials, and content of an interrelated nature in the chosen areas. Such materials might be oriented toward the continuing education of school administrators. Problem areas reflected in such phrases as "education and race relations", "education and governmental relations", "new industrial educational complexes and school systems", and "the financing of education" are suggestive of specific targets for development. The prototype materials described by Downey in Chapter Three on the important administrative process of planned change could be another important focus for developing continuing education materials.

Still another program emphasis could be that of preparing, storing and making available video-taped lectures to capture and store emerging content pertinent to the preparation of educational administrators. Such tapes might emphasize reports and analyses of innovations in educational administration, analyses of emerging issues confronting educational administrators, reports on significant research projects bearing upon educational administration, and descriptions of important governmental actions and decisions with implications for educational administrators. The preparation, storage, and distribution of video-taped resources could be supplemented by efforts to enable universities to make greater use of telelectures. Telelectures could be used as a basis for discovering and screening content which might desirably be recorded on video-tape for widespread use.

Another program emphasis might concentrate upon the publication of materials. These might include special content developed for the practicing educational administrator or textual materials for use in pre-service, resident programs. Such materials might involve both the ordering and assembling of existing materials in anthologies or the preparation and distribution of new syntheses of knowledge.

These are additional program emphases which could guide the work of the projected National Center, but the above ideas should be sufficient to indicate something of its potential directions. Clearly, a mechanism would need to be developed which would afford continuing advice on program emphases and which would ensure reactions from both university personnel and practicing educational administrators.

APPENDICES

APPENDIX A

Written Case Studies in Educational Administration

INTRODUCTION

According to professors of educational administration, one of the primary barriers to the use of case studies has been the inordinate amount of time involved in locating cases suitable for a particular purpose. For this reason, and because the Articulated Media Project Staff needed to gain a working knowledge of the numbers and kinds of written case studies which were readily available for use by professors of educational administration, a study and compilation of written case studies in print in the United States was undertaken.

Two products resulted from this study. First, the Project Staff did gain the "working knowledge" of written case studies which was needed. Second, a publication (1) for the use of professors interested in locating and using case studies in instruction was made available.

THE PUBLICATION

The publication is presented in two parts. The first part includes a 160-page listing, analysis, and synopsis of 221 written case studies in educational administration. The second part includes a set of 37 punched IBM cards which are used to store pertinent information about each case so that professors using the materials can locate cases to serve their needs without a great expenditure of time and effort. Each of these two parts will be described in detail.

Case Description Dimensions

All cases which are included in the publication are presented in a standard format as shown in the sample case description below.

Case #43-6

(2) Title: Controversy in Castleton (3) By: H. L. Hodgkinson (4) Length: 3 pp.

(5) Source: Educational Decisions: A Casebook, Prentice-Hall, Inc.
Englewood Cliffs, N. J. (1963), p. 92.

(6) Year of Publication: 1963 (7) Locale: Large Suburb (8) CASE TYPE: Issue

(9) ROLE: Superintendent (10) MAJOR TASK: Relations School-Community

(11) MINOR ACTORS:
Pupils
Community
Professional Staff

(12) RELATED TASKS:
School Law

(13) Synopsis: The case describes the situation in a community in which the population has changed, in the last 20 years, from largely protestant to predominantly Jewish. There is no written or definitive school policy with regard to Christmas and/or Chanukah (Hanukkah) programs, decorations, etc. in the schools. The case describes the pressures which are building in the community over this problem, and details specific occurrences in some of the individual school buildings. The superintendent realizes that the present policy of "no policy" cannot continue and that before another year passes pressures will force the schools to adopt a single policy for all schools on this matter.

(14) Possible Discussion Concepts: (1) organizational structure (centralized control v. autonomy); (2) mediation

Item 1 - Case number: Each case is numbered by a two number code such as 43-6. This numbering system permits the various bits of data from each case to be punched on the IBM cards of the visual retrieval system. Directions for using the retrieval system appear within the materials.

Item 2 - Case title: This item provides the title of the described case.

Item 3 - By: This item provides the name of the author of the case.

Item 4 - Length: This item indicates the number of pages of the original case. The data of this item are punched on the retrieval system cards in terms of cases from 1 to 5, 6 to 10, 11 to 20, and over 20 pages in length.

Item 5 - Source: This item provides bibliographical information with regard to the book or booklet in which the case is found.

Item 6 - Year of Publication. Self explanatory.

Item 7 - Locale: This item provides data regarding the size of the city or place in which the case takes place. Not all cases describe the setting of the case; therefore, some cases will not provide this bit of data. When provided by the case, this information is punched into the retrieval system in terms of the following six categories:

a. Rural - A place of 5,000 inhabitants or less

b. Small City - 5,001 to 50,000 inhabitants

c. Suburb - A suburb of under 50,000 inhabitants

d. City - 50,001 to 250,000 inhabitants

e. Metropolitan - Over 250,000 inhabitants

f. Large Suburb - A suburb of 50,000 or more inhabitants

Item 8 - Case Type: Under this item three descriptive terms are used to indicate the basic form of the cases. These terms are "issue case," "descriptive case," and "descriptive case with discussion or analysis."

The "issue case" commonly contains one or more problems along with background material essential to understanding the environment of decision-making. In this type of case no report of what was done to resolve the major problem or problems is given. This kind of case generally serves as a stimulus to decision, for the student must choose from among a range of possible alternatives which may be implicit or explicit in the case. Furthermore, the student usually states the reasons for his actions and the intended and possible unintended results. "Issue cases" are often used to provide the student with opportunities to engage in a variety of decisions in a variety of settings. In addition it is possible to provide the student with feedback on the quality (1) of his decision, and (2) of the chain of reasoning which he employed in thinking about the problem. In other words, the student can obtain actual practice in decision making and may have the product and processes of his thinking assessed in a risk-free situation.

The "descriptive case" features a description of one or more problems, including relevant background materials, and a statement or indication of what was done. These cases generally are used to furnish a representation of reality for the abstract world of theory and concepts. The "descriptive case," therefore, supplies the instructor with a context for teaching the student to formulate concepts by generalizing from particular events in the case and/or with a context for relating concepts to practical situations. The "descriptive case" is frequently used as a means for the student to gain practice in analyzing the forces which impinged on the administrator as he made the decision, and as a means for examining the factors which the administrator considered in reaching the decision. "Descriptive cases" also have been used to provide the student with an opportunity to develop skills in diagnosing organizational and administrative weaknesses.

"Descriptive cases with analysis or discussion" contain the same kinds of information that are found in "descriptive cases." In addition, these cases contain a report, by the author, of the results of and/or an analysis of the case.

Item 9 - Role: This is a descriptive item which indicates the administrative person and/or position most crucially involved in the case. In some of the cases more than one person or position is deeply involved, and in such cases two role incumbents are indicated in the "role" item. Several cases are described in which the situation is such that the case has implications for administrative positions not actually involved in the case itself. When this situation occurs, two or more "roles" may be designated. It should be recognized that cases often involve problems and situations in which it is difficult to determine just which "role" or position is most crucially involved. In such cases, the "role" was arbitrarily designated as the "higher" of the two administrative positions involved.

"Roles" are described in one or more of the following ways:

a) Superintendent

b) Principal (any level), e.g., the case may involve an elementary principal but may present a problem which is common to both elementary and secondary levels.

c) Secondary Principal (includes junior high school)

d) Elementary Principal

e) Business Manager

f) Supervisor (includes director of curriculum)

g) Other (guidance counselor, school psychologist, junior college president, state department official, etc.).

Item 10 - Minor Actors: This item provides data with regard to others in the case who interact with the person(s) described in the "role," item 9 above.

Item 11 - Major Task: This item describes the main administrative task area involved in the case. Although several task areas may be relevant in a particular case, an attempt has been made to select that task area which seemed to be the critical area involved in the case. In a very limited number of cases, two task areas are deemed to be of equal significance and both are itemized under "Major Task." In order that the data might be used in the retrieval system, the "task" categorizations were limited to the broad area of administrative responsibility. Eight task areas were utilized, seven of which were "borrowed" from the Campbell, Corbally, and Ramseyer (2) description of administrative tasks. The task areas are:

a) School-Community Relations

b) Curriculum Development

c) Staff Personnel

d) Pupil Personnel

e) Finance and Business Management

f) Organization and Structure

g) Physical Facilities

h) School Law

Item 12 - Related Tasks: This item lists the tasks, if any, which are important in the context of the case, but which are tangential to the "major task." The eight task areas which are used to categorize item 11, major task, are also used in describing the related task areas.

Item 13 - Synopsis: This item provides a summary of each case and includes a general description of the nature and context of the case. The case user can select the case or cases which seem to serve his purposes best by using the case retrieval system to find several cases which relate generally to the area in which he is interested. Then, by reading the synopsis of each of these selected cases, he can select the case, or cases, most appropriate for his particular needs.

Item 14 - Possible Discussion Concepts: For each case included in the publication one or more concepts from the social science disciplines have been selected and listed under the heading of "Possible Discussion Concepts." Consideration of what is meant by social science concepts, why they have been presented, how they have been selected, and the reservations held for this aspect of the publication, provides the subject of the following paragraphs.

As used in the Case Study publication, the notion of concepts is a simple one: concepts are labels introduced to call attention to certain, generally abstract, phenomena. Social science concepts call attention to social behavior and to the behavior of individuals in social situations. Concepts are seldom self-explanatory; they have no meaning other than that which is attributed to them by definition. Concepts are not given; they are formulated to focus attention on particular phenomena. Concepts are neither true nor false; they are either useful or not useful.

In presuming to suggest concepts applicable to complex administrative situations, the question of usefulness has been an important concern. In formal scientific endeavors a concept's usefulness is judged by the economy and power of the theoretical propositions made possible by its use. According to such criteria, "socio-economic class" is very useful (i.e., there are many propositions like the following: if X socio-economic class, then Y attitude toward progressive education) and the concept "educational statesman" relatively useless (i.e., there are no attempts to use it in theoretical propositions). The concern here is not with building theory. Rather, the reason for presenting the concepts is to focus the readers' attention on certain phenomena deemed central to a given case -- useful concepts lead one to consider phenomena the case is "really about." Consequently, some concepts of limited theoretical usefulness (e.g., nationalizing influences) have been used. Nevertheless, these concepts present phenomena which seem to be suitable focal points for case discussion.

Although there are numerous uses for case studies, concepts have been suggested with the minimal expectation that the cases will be analyzed and discussed as a group exercise, and that strategies for resolving the problems presented by the cases will be put forth by the discussants. The concepts will provide discussion leaders with alternate approaches for analysis, discussion, and development of strategies. For example, it is suggested that the case number 51-4, "Unemployed," may be viewed from the perspective provided by the following concepts: social costs, selective perception, or latent goals. Each concept calls attention to a very important phenomenon in the complex situation, a phenomenon which might well be overlooked without the suggested concept.

The concepts may also be used as "tags" to more general theoretical formulations or to empirical research associated with particular phenomena. For example, "social costs" may lead one to Homan's exchange theory and then to the empirical work of Peter Blau. The concepts seldom provide an easy link to theory or empirical research, but they do provide a starting point.

The concepts will be useful to professors desiring to supplement case studies with reading in the social science disciplines. Given a concept, it is a relatively simple task to develop readings which provide substantive knowledge of the meaning and uses of the concept and of the general theoretical framework, if any, of which it is a part. The bibliography provided with the Case Study Publication should be useful in developing supplementary reading assignments and in initiating deeper study of more general social theories or empirical research relevant to particular phenomena.

The Punched Card Visual Retrieval System

This system was devised to be used in conjunction with the written materials described in the preceding section. The Retrieval System is designed to aid professors in locating case studies which will be of maximum utility in whatever teaching situation they may wish to create. Included in the Retrieval System are thirty-seven punched IBM cards. Each punched hole in a card represents one of the 221 case studies which are described in the portion of the materials. For example, a punch in column 35, row 3 of a card refers to case number 35-3 which is described in the written section.

Each punched card is labeled with a short description of a particular case characteristic. For example, one of the (violet bordered) cards is labeled "1 to 5 pages." This card is punched to indicate all cases of the 221 described cases which are from 1 to 5 pages in length. There are three additional cards with violet borders. These cards are labeled "6 to 10 pages," "11 to 20 pages," and "over 20 pages." Each color group stores information with regard to one characteristic of the described cases, e.g., the yellow bordered cards store information with regard to the "type" of the cases, and the blue bordered cards store information with regard to the "major task" of the cases.

The "System" user who has a full packet of cards can, by selecting the proper combination of cards, conduct a rapid visual search for a case study or studies which have certain characterisitcs which will serve a particular instructional purpose. For example, suppose the professor wishes to present his class with a fairly brief case, say 1 to 5 pages in length, which deals with a staff personnel problem faced by the superintendent of schools of a small city school district. To find cases meeting these particular requirements the professor can select the following four cards from his packet of 37:

1. Violet, 1 to 5 pages card
2. Blue, Major Task-Staff Personnel card
3. Yellow, Superintendent card
4. Tan, Small City card

By placing these four cards one atop the other, the professor can, by visual inspection discover any holes which show through all four cards. Such holes represent cases which fit all of the criteria mentioned above. The professor can thus turn to the case description section, read the synopsis of the indicated cases, and select the case or cases which best serves his purpose. Other cards, indicating other criteria for cases can, of course, be added to the stack of four so that the case selection process is more selective.

This case retrieval system is quite flexible and makes the process of locating cases of a particular kind, if they exist, a very simple matter.

IMPLICATIONS OF THE STUDY

During the process of compiling the publication just described a total of 221 case studies, from fourteen different sources, were examined. While there are no doubt more than 221 extant case studies in educational administration, the number of published, readily available case studies at the time the study was conducted was probably very close to the 221 reported. The purpose of the study (and of the publication) was not to list every case study that was ever published. Rather, it was to examine and list all readily available, relatively recent studies which might be useful in contemporary preparatory programs. Therefore, the 221 cases reported within the study represent, at a minimum, a very good cross section of the case studies usable and available through March, 1965.

One of the major purposes for conducting the study, other than providing a reference work for professorial use, was to determine (1) the type and nature of the studies available, and (2) the instructional areas in which case studies did not exist or were not plentiful. The following tables will serve to illustrate the finding in this regard.

Table I

THE MAJOR TASK OR MAJOR AREA OF CONCERN OF THE CASE STUDIES

Major Task-Concern	Number of Studies	Percentage of all Studies (221)
Staff Personnel	82	37.1%
School Community Relations	53	24.0%
Organization and Structure	27	12.2%
Pupil Personnel	25	11.3%
Curriculum Development	18	8.5%
Finance and Business Management	8	3.6%
Physical Facilities	6	2.7%
School Law	6	2.7%
Total	225*	102.1%

*Discrepancies in the totals exist because four studies had two major tasks or areas of concern.

Examination of Table I reveals that over 60% of the available case studies have as their major areas of conern (1) staff personnel or situations, and (2) school community relationships. It appears significant, in light of the current emphasis on administration as instructional leadership, that only 8.5% of the cases have as their major concern the area of curriculum development.

Table 2 provides information regarding the related task areas considered in the 221 cases. "Related task area" means that the area is important in the context of the case, but that it is tangential to the major task or area of concern of the case.

Table 2

THE RELATED TASK OR TANGENTIAL AREA OF CONCERN OF THE CASE STUDIES

Related Task Concern	Number of Studies	Percentage of all Studies (221)
School Community Relations	99	44.8%
Staff Personnel	65	29.4%
Curriculum Development	43	19.5%
School Law	42	19.5%
Finance and Business	41	18.6%
Pupil Personnel	37	16.7%
Physical Facilities	33	14.9%
Organization and Structure	24	10.9%

Table 2 shows that over 74% of all the 221 cases involve, to some degree, the areas of school community relations or staff personnel, and combining the data of tables 1 and 2 that 66.5% of the 221 cases have as either their major _or_ related area of concern the area of staff personnel. Similarly 68.8% of all cases involve the area of school community relations. The other six areas of concern are represented by a low of 17.6% of all cases dealing with the area of physical facilities to 28% of all cases dealing with the areas of pupil personnel and curriculum development.

The next aspect of case study content which was considered was that of the role of the person who is most crucially involved in the case, i.e., the major actor described in the case. Table 3 provides a breakdown of the cases with regard to this aspect.

Table 3

THE ROLE OF THE MAJOR ACTOR DESCRIBED BY THE CASE STUDIES

Role	Number of Cases	Percentages of Total (221)
Superintendent	136	61.5%
Secondary Principal	49	22.2%
Elementary Principal	30	13.6%
Principal, Any Level	25	11.3%
Supervisor	18	8.1%
Business Manager	7	3.2%
Junior College Administrator	12	5.4%
Psychologist-Counselors	5	2.3%
Board Members	2	0.9%
State Dept. Administrators	2	0.9%
Others	4	1.8%

Table 3 shows that a majority of written cases involve the superintendent as the major actor. Note that while the elementary principal is the most prevalent administrative position in terms of numbers of persons holding this position, the cases involving elementary principals as major actors are only 11.3% of the 221 cases.

Table 4 provides a cross-analysis of the data provided by Tables 1 and 3. That is, the data on major area of concern of the case studies is related to the data on the role of the major actor in the studies. This provides information regarding the number of cases involving each role position and the areas with which the cases deal for that position.

Table 4

MAJOR TASK AREAS AND ROLE POSITIONS: A CROSS-COMPARISON

Major Task Area	Number of Cases Involving:						
	Superintendent	Secondary Principal	Elementary Principal	Principal any level	Supervisor	Business Manager	Others
School Community Relations	43	8*	4*	3*	2*	0*	4
Staff Personnel	41	29	17	20	10	2*	2
Organization and Structure	20	1**	1**	1**	1*	0**	6
Curriculum Development	11	3**	0**	0**	5**	0*	4
Finance and Business Management	8*	0*	0*	0*	0	1**	0
Physical Facilities	5*	0*	1*	0*	0	3**	0
Pupil Personnel	4	8	7	0**	1**	1	2
School Law	4**	0*	1*	1*	0	0**	7

Table 4 indicates the areas in which cases are plentiful and also those in which cases are sparse or not available at all. The asterisks in the table indicate the areas in which future development of case studies appears to be needed. A single asterisk indicates a need for cases in the area while a double asterisk indicates a pressing need for cases.

One final analysis was made of the 221 case studies. This analysis, presented in Table 5, involves a specific topical analysis of each of the cases. A total of 57 specific topics were represented by the cases, about one-half of the cases included two or more specific and separate topics.

Table 5

TOPICAL ANALYSIS OF CASES

Problem Area	Number of Cases
1. Community divisiveness, factionalization, protest group	20
2. Student Control and discipline	19
3. Communication and/or personal relations breakdown among teaching staff members	15
4. Communication and/or personal relations breakdown between board and superintendent	14
5. Junior College Administration	14
6. Religion and the Schools	13
7. Individual complaints by parents	13
8. Ineffective organization and leadership	13
9. Contracts, salaries, and working conditions	12
10. Promotion and tenure	10
11. Civil rights, school integration	10
12. Reorganization of districts	9
13. Unprofessional behavior - teacher	9
14. Legal actions - Court actions	8
15. Lack of, or violation of, written policy	8
16. Financial problems	8
17. Communication and/or personal relations breakdown between administration and staff	8
18. Communication and/or personal relations breakdown among boards, administrations and staff	7
19. Administrative reorganization - new position problems	7
20. Teacher supervision	7
21. Controversial issues, "communisitc teaching materials"	7
22. Curriculum change	7
23. Student guidance	7
24. In-service Training	6
25. Community lack of confidence, mistrust of schools	6
26. Community apathy - lack of interest	5
27. Academic freedom	5
28. Untenable political situations	5
29. Negotiations, sanctions, strikes	5
30. Evaluation of teachers	5
31. Staff Insubordination	5
32. Socio-economic class difficulties	5
33. Staff morals	4
34. Low staff morale	4
35. Planning for Change	4
36. Unprofessional behavior - superintendent	4
37. Unprofessional behavior - board of education	3
38. Student morals	3
39. Staff subversives and "pro-communists"	3
40. Integration of teaching staff	3

Table 5, cont.

Problem Area	Number of Cases
41. Textbook Selection	3
42. Transportation - tuition	3
43. Formal grouping of students	3
44. Communication and/or personal relations breakdown among board, administration and community	2
45. Communication and/or personal relations breakdown among board members	2
46. High School secret societies	2
47. School dropouts	2
48. Extensively rapid growth of system	2
49. Reporting student progress	2
50. High rate of staff turnover	1
51. Conflict between professional association	1
52. Athletics	1
53. Teacher selection	1
54. Sex education	1
55. Unprofessional behavior - principal	1

An examination of Table 5 along with Table 4 should enable the reader to judge the areas and topics which need to be given the greatest attention in the future development of written case studies in educational administration.

FOOTNOTES

(1) J. J. Horvat, E. M. Bridges, and G. E. Sroufe, *Case Studies in Educational Administration: An Information Storage and Retrieval System*, (Columbus, Ohio: The University Council for Educational Administration, 1965).

(2) R. F. Campbell, et. al., *Introduction to Educational Administration*, (Boston: Allyn and Bacon, Inc., 1962), pp. 90-130.

APPENDIX B

The Index of Media for Use in Instruction in Educational Administration

One of the major purposes of the Articulated Media Project was to develop specifications for curriculum and instructional materials to be used in pre-service and in-service programs for educational administrators. In designing specifications for such materials it was considered necessary to gain some knowledge of the kinds of materials and media presently being used by professors in their preparation programs.

To gain this information a questionnaire survey was initiated by a member of the Articulated Media Project staff under the auspices of the University Council for Educational Administration. The substantive findings (i.e., the title and sources of the various media reported) of this survey are presented elsewhere in booklet form(1) for the use of professors in their planning for instruction. This statement summarizes the major findings of the survey.

The booklet lists 319 different audio-visual devices which have been used by professors of educational administration in their instructional efforts. Materials of the following kinds are represented in the booklet in the quantities indicated.

Audio tape recordings	156
Films (16 m.m., sound)	107
Filmstrips	9
Slide sets	6
Disc recordings	4
Overhead projection transparency sets	7
Programmed materials sets	5
Gaming materials	7
Simulation devices	9
Miscellaneous items	9
Total	319

The following classification system was used in the booklet for categorizing and listing the materials. The numbers in parentheses appearing after each descriptive item indicate the number of reported audio-visual devices which have been found to be useful in instruction in that particular area.

Instructional Media Classification System

I. Tasks of Administration (Focus on job performance and on division of responsibility)

   A. Instruction and Learning (33)
   B. Curriculum Development (38)
   C. Staff Personnel (41)
   D. Pupil Personnel (15)
   E. Finance and Business Management (16)
   F. School Plant and Services (Transportation, School lunch, etc.) (18)
   G. School-Community Relations (Including School Board Relations) (27)

II. Administrative Processes and Organizational Variables (Viewed within context of groups of people interacting-emphasis on social and psychological aspects or organizations.)

   A. Goal Setting (8)
   B. Communicating (28)
   C. Initiating Change (16)
   D. Making Decisions (12)
   E. Negotiating (11)
   F. Supervising and Evaluating (16)
   G. Building Morale or Climate (15)
   H. Resolving Conflict (14)

III. Societal Factors Influencing Education (Focus on societal aspects which have special implications for changes in educational programs and policies.)

   A. Population Growth and Metropolitanism (15)
   B. Automation, Science, Technology (20)
   C. Race Relations (19)
   D. Church-State Relations (14)
   E. Conflicting World Ideologies (7)
   F. Governmental Change (20)
   G. Economic Development (21)
   H. Social Class Structure and Mobility (24)

IV. Preparation Programs for Educational Administrators

A. Recruitment (1)
B. Selection (1)
C. Curriculum (26)
D. Instructional Methodology and Materials (19)
E. Field Experiences (Internships, Apprenticeships, etc.) (2)
F. In-Service Education (4)
G. Professionalization (7)
H. Certification (0)
I. Theory Development (10)
J. Research Methodology (3)

V. Materials Relevant to the Area of Higher Education (12)

When the numbers in parentheses above are totaled their sum is 533. This figure reflects the fact that some of the 319 reported items were found to be useful in more than one of the described areas.

Although the booklet which was published may be of considerable use to professors, its production was not the main motivation for conducting the study. Rather, the Project staff was motivated by a desire to gain information with regard to two questions: (1) 'What instructional materials are available for use by professors," and (2) "How extensively are the available materials used by professors?"

While it is not claimed that the survey has indexed all existing audio-visual materials that might be useful in instruction in educational administration, it appears that most of the existing, readily available materials are listed.

From the data given above it can be seen that audio tapes and films comprise the major body of audio-visual devices available for use in instruction in educational administration (82.4% of all materials reported were in these two categories). On the other hand, reality oriented, student participation, devices such as games and simulation devices accounted for only 5% of all the materials.

Most of the areas described by the classification system have available a number of media which are being used in instruction. However, the following areas appear to be ones in which media are relatively limited.

I. TASKS OF ADMINISTRATION

  a. Pupil personnel
  b. Finance and business management

II. ADMINISTRATIVE PROCESSES AND ORGANIZATION VARIABLES

  a. Goal setting
  b. Initiating change
  c. Making decisions
  d. Negotiating

III. SOCIETAL FACTORS INFLUENCING EDUCATION

  a. Race relations

IV. PREPARATION PROGRAMS FOR EDUCATIONAL ADMINISTRATORS

  a. Recruitment
  b. Selection
  c. Field experience
  d. In-Service education
  e. Professionalization
  f. Certification
  g. Research methodology

V. MATERIALS RELEVANT TO THE AREA OF HIGHER EDUCATION

The number of devices available for instructional use can be determined with varying degrees of accuracy by a study such as the one conducted. But there is no way to assess the quality of the materials through a questionnaire study.

One comment can be made with respect to quality of the materials. That is that films and audio tapes, while they may be excellent in terms of their content and production techniques, are often not completely relevant to the topic being studied. In other words, much of the time required to use films and tapes in an instructional setting will be spent in viewing or listening to parts of the materials which do not contribute to the problem or area under consideration. Other kinds of audio-visual materials generally do not involve such a high degree of "inefficiency." But, as has been noted, films and audio tapes make up over 82% of the materials located by the survey. Therefore, in planning for the future development of instructional devices, it would appear that greater emphasis needs to be placed on the creation of highly relevant, gaming and simulation materials which encourage high involvement on the part of students; and that less emphasis should be placed on the development of films and audio tapes.

The question of the extensiveness of use by professors of the available materials was not answered by the results of the survey. There are indications that the use of the existing media is not widespread or consistent, but the survey did not demonstrate conclusively that this is indeed the case.

The survey was conducted by sending a three page questionnaire to over one thousand individual professors of educational administration and to professors in related fields. Less than one hundred of the questionnaires were returned, and of these only seventy-five contained information regarding instructional media which had, in fact, been used by the respondent or his colleagues. At first glance the paucity of the returns could be taken to indicate that the use of media in instruction is not widespread. This "hunch" was reinforced to some degree by the fact that some twenty of the respondents indicated that they and their colleagues did not use any media whatever in their classes. It must be recognized, however, that causes other than failure to use audio-visual media may have been responsible for the small return of the survey. The universal lack of inclination to respond to questionnaires may be the major reason for the small return, (and the more than 900 professors who did not respond may be active users of media.)

There may be other causes for the lack of response to the questionnaire, but the two mentioned above seem to be the most likely. The question of which of these two reasons is, in fact, the case must await further investigation to be answered.

FOOTNOTES

(1) John J. Horvat. *An Index of Media for Use in Instruction in Educational Administration.* (Columbus, Ohio: The University Council for Educational Administration, 1966), p. 58.

APPENDIX C

Selected Bibliography on Systems Concepts

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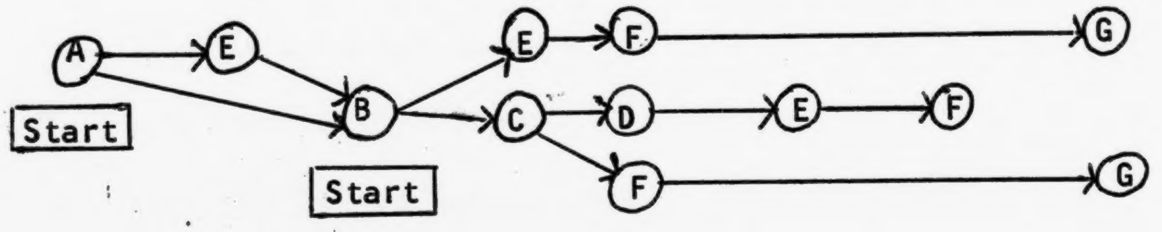
APPENDIX D

"Tree" Language

The "tree" language which was explored was modelled after the one used by C. W. Churchman in business management simulations at Berkeley.(1) Using this type of language the subject constructs his complete response by building it out of components (words or phrases) selected from different columns. The sequence of columns must conform to one of a number of permissible patterns displayed on a branching "tree" of alternatives. To illustrate let us take a simple example. Suppose the columns were set up in the following manner:

	A	B	C	D	E	F	G
1.	what	is	failures	for 8th grade	should	be	discarded
2.	where	are	dropouts	for 9th grade	will	was	funded
3.	who	will be	migration	for 10th grade	can't	is	answered
4.	calculate	the	enrollment	for 11th grade			
5.	can	this	predicted enrollment	for 12th grade			
6.	why	that	proposal				
7.	how	those	questionnaire				
8.			examination				

and the "tree" of alternate patterns looked as follows:



Then using the "B, C, E, F, G" sequence, call it sequence I, the subject could encode the following message: "THIS PROPOSAL SHOULD BE FUNDED," simply by transmitting the following digits:

I 56112

Using the "A, E, B, C, F, G" sequence, call it sequence II, he could communicate: "WHY SHOULD THIS PROPOSAL BE FUNDED" by transmitting:

II 615612

Similarly using the "A, B, C, D" sequence, call it sequence III, he could ask:

"WHAT ARE FAILURES FOR 8th GRADE"
"WHAT ARE DROPOUTS FOR 9th GRADE"
"WHAT IS ENROLLMENT FOR 10th GRADE"

by transmitting respectively:

III 1211
III 1222
III 1143

Using the type of information supplied by the computer to these last three questions, the student could begin work on estimating future enrollments if he felt that that estimation was a necessary component of, for example, a decision to expand or not to expand present facilities.

Clearly even in this simplified form, this language raises many problems. However, it does seem to offer restrictions which are not too severe for a subject who knows what he wants to say, who has some familiarity with the language and for whom there is not a large set of alternative statements. Furthermore, it offers strict comparability of responses between subjects and between the same subject over a period of time. It also allows for great economy in computer storage and minimum typing skills on the part of the subject. These qualities suggest that further experimental work with this approach in education administration is warranted.

FOOTNOTES

(1) C. W. Churchman, "Research Strategy Variences, and Implementation," Working Paper #100, Center for Research and Management Science, University of California, Berkeley, California, (October, 1964).

APPENDIX E

CAMP Problem 1 - Subject A

It is Christmas recess and you are in your office ready to confront an immediate and pressing decision. The question at hand concerns the following recommendation that the late superintendent had prepared for the impending board meeting.

> It is recommended that Homewood Elementary School be continued as a center for kindergarten and grades 1 through 6. And that necessary renovations and an addition be made to provide space for approximately 450 pupils by September, 1966.

As you seek the information necessary to arrive at a decision and adopt a course of action you have access to staff members who are especially knowledgeable in the following areas.

* Community-Population *
* Finances *
* Program and Staff *
* School Plant *

Please direct your questions to any of these experts by typing the words or phrases which appear between the asterisks. With whom do you wish to start?

SCHOOL PLANT

Hello, glad you called. Hope I can help you. The elementary schools in Washington district vary as to * location and site *, * physical structure *, * building capacity *, * classrooms * and * transportation services *. What would you like to know?

Remember to indicate the information you desire by using the word or words between the asterisks.

BUILDING CAPACITY

I can tell you about * gross floor area *, * pupil capacity *, * number of pupils being served *, * % of building utilization *, and * last year ADM *. What would you like to hear?

Please indicate whether you desire information about the district (D), only the elementary school buildings (E), or just the Homewood School (H), by using the appropriate letter D, E, or H after the term or terms indicating the information you desire. For example, if you wished to know the number of classrooms in Homewood you would type in, "Number of Classrooms H", but if you wanted to know the number of classrooms in all the elementary buildings you would type in "Number of Classrooms E" and so on.

PUPIL CAPACITY H

280 available pupil stations.

PHYSICAL STRUCTURE

I know something about * type of construction *, * age *, and * general condition * of school buildings. I also know of any * improvements underway *. What would you like to know?

Remember to use "D", "E", or "H" to indicate the appropriate information desired.

AGE H

Original construction was 1924. addition made in 1955.

SITE

Have you forgotten to place an H, E, or D after your last entry? Answer Yes or No.

YES

Then please retype correctly.

LOCATION AND SITE H

Have you forgotten to place an H, E, or D after your last entry? Answer Yes or No.

NO

Have you spelled something incorrectly? Answer Yes or No.

NO

Have you placed an H, E, or D after an entry where it is inappropriate? For example if your last entry was classrooms, location-site, physical structure, building capacity or transportation services it would be inappropriate to follow with an H, E, or D. Answer Yes or No.

YES

Then please retype correctly.

LOCATUL/L/UION AND SIYE/E/YTE

I can tell you about * location of school(s) *, * area of site(s) * and * future plans * for the location and site of school building(s). What information would you like, if any?

Remember to use "D", "E", or "H" to indicate the appropriate information desired.

AREA OF SITE H

3 acres. However, there is a 5 acre site adjoining that is owned by the city. It was originally intended for use in building a hospital but plans for this have been abandoned. It could be acquired at city's cost and properly graded for school use.

GENERAL CONDITION H

The exterior of the building is in good condition. Inside, the kindergarten, health and food service facilities are satisfactory as well as 10 of the regular classrooms. However, 3 classrooms are unsatisfactory and the art room, music room, and special activities room are just minimally acceptable.

BUILDING CAPACITY

Do you want information about * gross floor area *, * pupil capacity *, * number of pupils being served *, * % of building utilization * or * last year's ADM *?

LOCATION OF SCHOOLS D

Open Map No. 3.

FINANCES

Welcome aboard, Skipper. If you would like to know anything about * taxes *, * bonds *, or * capital outlay * I'm your man.

BONDS

Have you forgotten to place an H, E, or D after your last entry? Answer Yes or No.

YES

Then please retype correctly.

CAPACITY D

At present it is $5,850,000.

ELECTIONS

Have you forgotten to place an H, E, or D after your last entry? Answer Yes or No.

YES

Then please retype correctly.

ELECTIONS D

Since 1946 there have been seven bond issues submitted to the electorate of the school district by the board of education for construction or improvement of educational facilities. All received a favorable vote.

CAMP Program: List of Maps and Tables

MAPS

# 1 - Homewood located in community

2 - Elementary schools located in community

3 - All schools located in community

4 - Overlay of location of future elementary schools on Map #2

5 - Overlay of location of future elementary schools on Map #3

6 - Overlay of location of all future schools on Map #3

7 - City-district boundary lines

TABLES

# 1 - Size of sites - elementary schools

2 - Size of sites for all schools

3 - Condition of elementary classrooms

4 - Condition of district classrooms

5a- Enrollment trends (7-12)

5b- Enrollment trends (K-6)

6 - Homewood trends

7 - Homewood Projection

8 - Bond Sales

Table 6

ENROLLMENT TRENDS HOMEWOOD

GRADE	ENROLLMENT						
	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Kindergarten	32	35	36	37	39	42	44
Grade 1	47	50	51	53	54	56	58
Grade 2	41	44	45	46	46	49	52
Grade 3	39	42	43	44	45	48	50
Grade 4	40	44	46	48	50	53	55
Grade 5	41	44	45	48	49	52	54
Grade 6	36	39	40	41	43	45	46
TOTAL	274	296	304	315	326	345	361

Table 7

ENROLLMENT PROJECTION HOMEWOOD

GRADE	ENROLLMENT				
	1964-65	1965-66	1966-67	1967-68	1968-69
Kindergarten	44	53	57	54	51
Grade 1	58	64	59	56	55
Grade 2	52	72	63	59	55
Grade 3	50	66	69	65	58
Grade 4	55	61	68	67	65
Grade 5	54	67	62	66	65
Grade 6	46	58	64	61	67
TOTAL	361	441	442	428	416

APPENDIX F

Instructions for the SAM Problem

Following these instructions, there is a brief description of a position as principal open in your school system, at Homewood Elementary School. After that the biographies of four candidates who have survived the initial screening procedures are presented. Using the information given to you about the position, your background knowledge of the entire school system as well as the unique requirements of the position at Homewood, and your own subjective preferences for the type of person most suitable to fulfill the requirements of this position successfully, you will be asked to evaluate the candidates along four continua and to finally select the candidate you find most suitable.

The four criteria you will be asked to use are described briefly as follows:

1. Experience--based not only on the amount of teaching and administrative experience but more importantly, on the quality and kind of experience in education as it relates to elementary school programs.
2. Administrative skills--ability to deal with the organizational necessities of managing the office, preparing reports, responsibility for official records, disciplinary cases, and the administration of the resources of the school.
3. Staff personnel relations--involves those professional functions of aiding teachers improve their performance,

knowing their strengths and weaknesses, stimulating teachers to innovate, and upgrading the instructional program.

4. Personal image--concerns the affective factors involved in working with and relating to others, such as the attributes of friendliness, ease of conversation, enthusiasm, and overall personality and appearance.

Please express your evaluation in the following manner:

If you strongly believe the candidate will do a really outstanding job as measured against any given criteria, then give him a rating of 10 for that criteria. If, on the other hand, you strongly feel that the candidate will do a very poor job, as measured against any given criteria, then give him a rating of 0. If you feel he will do an average job, rate him 5. Use the other numbers between 0 and 5, 5 and 10 to rate him according to your appraisal of where the candidate will fall on any criterion's continuum between very poor and average, or average and outstanding. Keep in mind that a candidate's rating on one criterion may be quite different from that on any other.

After you have read the position description and the candidates' biographies and are ready to rate the candidates, please type BEGIN.

POSITION OPENING

ELEMENTARY SCHOOL PRINCIPAL

Washington School District
76 Virginia Avenue
Washington, Ohio

Applications are currently being accepted for an administrative vacancy in the Homewood Elementary School. This (K-6) elementary school has a staff of 14 teachers and an enrollment of 360 pupils. The beginning salary for this ten month position will be $9,100.00.

Washington is located ten miles north of Oxford on Route 23. The Washington area is an attractive, suburban community with approximately 13,000 residents. The school system presently has an enrollment of about 4,000 students (K-12) and has been growing at the rate of about 12% per year for the past five years. In September of 1966 the students will be housed in seven elementary schools (K-6), two junior high schools (7-8) and one senior high school (9-12).

QUALIFICATIONS

Applicants must be eligible for elementary school certification and must have a master's degree. Some kind of prior administrative responsibility is desirable. Preference will be given to those candidates with knowledge of curriculum developments and teaching practice.

For further information:

Dr. Pearson L. Baus
Assistant Supt. for Staff
Washington School District
76 Virginia Avenue
Washington, Ohio

ARTHUR W. ABELS

Principal
Howard Elementary School
Groveport, Ohio

Recommended by
Central Ohio University Placement Office

Residence - 309 Elmwood Drive, Groveport, Ohio

Telephone - Home: MUrray 4-2676

Age 32 5'10" 185 pounds Married 2 Children

Bachelor of Arts	1956	Central Ohio University
Master of Arts	1961	Central Ohio University
Elementary Principal's Certificate	1962	

Experience

1956 - 1959	Teacher, Grades 5-6	Darbydale School District
1960 - 1962	Teacher, Junior High School	New Albany District
1962 - 1963	Guidance Counselor	New Albany District
1963 - Present	Elementary Principal	Groveport

ROBERT L. BAKER

Assistant Principal
Hughes Road Elementary
Columbus, Ohio

Recommended by
Central Ohio University Placement Office

Residence - 449 E. Lane Avenue
Columbus, Ohio

Telephone - Home: AM 4-7125

Age 30 5'10" 165 pounds Married 2 Children

Bachelor of Science	1958	Ohio Teachers College
Master of Arts	1962	Central Ohio University
Elementary Principal's Certificate	1962	

Experience

1958 - 1960	Elementary Teacher	Irondale, Ohio
1960 - 1962	Elementary Teacher	Gahanna, Ohio
1962 - 1964	Reading Supervisor	Gahanna, Ohio
1964 - 1965	Elementary Principal	Gahanna, Ohio
1965 - Present	Assistant Principal	Columbus, Ohio

CHARLES E. CLARK

Principal
Glendale Elementary School
Jackson, Ohio

Recommended by
Central Ohio University Placement Office

Residence - 539 Doton Street
Jackson, Ohio

Telephone - Home: 838-3686

Age 33   6'1"   197 pounds   Married   3 Children

Bachelor of Science	1955	Northern Ohio University
Master of Arts	1960	Central Ohio University
Elementary Principal's Certificate	1961	

Experience

1955 - 1957	Teacher, Grades 6-7	Woodsfield, Ohio
1957 - 1959	Social Studies Teacher, Grades 9-10	Woodsfield, Ohio
1959 - 1961	Junior H.S. Counselor and Coach	Whitehall, Ohio
1961 - 1962	Curriculum Coordinator	Jackson, Ohio
1962 - Present	Elementary Principal	Jackson, Ohio

DONALD L. DIXON

Principal
Brown Elementary School
Buckeye Valley Local District
Kilbourne (P.O.) Ohio

Recommended by
Central Ohio University Placement Office

Residence - 1996 Moss Road
Worthington, Ohio

Telephone - Home: Richwood 2-4975

Age 31 5'9" 186 pounds Married 2 Children

Bachelor of Science	1957	Southeastern Ohio State University
Master of Arts	1960	Central Ohio University
Elementary Principal's Certificate	1961	

Experience

1957 - 1959	Teacher, Grades 4-5	Portsmouth, Ohio
1959 - 1961	Teacher, Grades 7	Bexley, Ohio
1961 - 1963	Coordinator for Elementary Libraries and Instructional Materials	Delaware County School Office
1963 - Present	Principal, Brown Elem.	Buckeye Valley Local Dist.

Letter of Nomination   Arthur W. Abels

In reference to the elementary principalship in your district, I wish to nominate Mr. Arthur W. Abels. I have known Arthur over the past several years and served as his adviser during his master's program. I have followed his career and conferred with him at various times about administrative problems and also career decisions. Art is particularly competent in his knowledge of the strengths and weaknesses of his teachers. He pays special attention to observing and discussing classroom performances of his staff and is very able to assess their capabilities.

Frank E. Larson
Professor of Educational Administration
Central Ohio University

Letter of Nomination Robert L. Baker

In regard to the vacancy in the principalship there in your district I would like to suggest the name of Robert Baker. Bob did his master's work with me in 1961 and 1962 and I have maintained contact with him over the last few years. Bob is an amiable administrator and possesses qualities that have won him many friends in the communities where he has served. He is an enthusiastic person and is emotionally sensitive to those with whom he works.

John R. King
Associate Professor of
Educational Administration
Central Ohio University

Letter of Nomination Charles E. Clark

The Placement Office has asked me to recommend a nominee for a principalship in your district. From the description of the position, I would favorably recommend Charles Clark who is now at Jackson, Ohio. The varied experience that Charles has had during his career would assure the breadth and depth necessary to do a very competent job in your situation. His experience has not been confined solely to elementary schools in small towns but also served in a large junior high school in Whitehall, Ohio. I think that Jackson, Ohio central administration recognized his potential and advanced him to the elementary principalship of Glendale School where he has done a very fine job over the last several years. I further believe that his experience now qualifies him, and his own career line suggests, a position such as the one in your district.

Sincerely yours,

Edward P. Johnson
Professor of Education
Central Ohio University

Letter of Nomination Donald L. Dixon

Don Dixon was one of my master's students and also has become one of my favorite elementary school principals. I had recommended him for his present job, and I think he is well qualified for the position you have described. Mr. Dixon is noted for the administrative skill that he has displayed both in his position as a coordinator and more recently in his position as principal. In his job as coordinator it was necessary for him to prepare reports for the county office and he did this in a most efficient manner. His reports were always comprehensive, and prompt. He has always managed his administrative responsibilities quite effectively.

George Immegart, Chairman
Department of Educational
Administration and Supervision
Central Ohio University

LETTER OF CANDIDATE

Gentlemen:

I am writing in response to your invitation concerning my interest and qualifications for the Homewood principalship. In reference to that position I wish to submit the following information about myself.

I did both my Bachelor's work and my Master's degree at Central Ohio University, and I have taught in the elementary school for three years. I also taught for two years in the junior high school and served a year as a counselor. I have been in my present position as Principal at Howard Elementary School for the past three years.

I think that I have something to offer by ways of candidacy of this principalship. It is based largely upon my breadth and scope of experience in elementary education. I feel that my teaching experience as well as my administrative experience has given me a familiarity with the growth patterns and the developmental processes of elementary children. I have come to know them and I think I can work not only directly with them but especially with teachers in the elementary school.

My experience as a junior high teacher gave me another perspective and that is the ability to see elementary school children emerging into adolescence. I am able to understand some of their problems and the school's problem of articulating the elementary program with the junior high school program.

However, I think the greatest strength of my experience comes from my work as an elementary principal. It has given a great deal of breadth to my experience, in working not only with pupils and teachers but also with the community at large. I have achieved a number of things in my experience as an elementary principal in the last three years, a few of which I might note. For one, I not only have been able to work at developing new curricula but I have also been able to relate to the community in rather meaningful ways to make them aware of the kind of things that the elementary school does.

Secondly, I have had the opportunity at Howard to work in some experimental programs. We were chosen as an experimental school and I was able to work with the State Department personnel as well as consultants and researchers from the University who visited our school. I was able to deal effectively with these people as well as the subject matter specialists who came into our school from the University.

I think that what I have by way of experience in elementary education would make me very well qualified for the position that you have in Homewood. I certainly hope that you will consider my candidacy.

Sincerely yours,

Arthur W. Abels

LETTER OF CANDIDATE

Gentlemen:

This is to acknowledge, with thanks, your letter requesting information about my candidacy and qualifications for the principalship in your district.

I am presently employed as Assistant Principal of the Hughes Road Elementary School in Columbus. I am 30 years old, married and have two children. I received my Bachelor of Arts degree from Ohio Teachers College. I received my Master's degree from Central Ohio University.

My educational experience includes four years as an elementary teacher, two years as a reading supervisor, one year as Elementary Principal in Gahanna and this past year as Assistant Principal at the Hughes Road Elementary School.

I believe that the role of the Principal is one of seeing that the school runs smoothly and of handling general planning for the entire school. I feel that the organization that is well-organized and efficiently managed runs smoothly and can accomplish its goals most easily. This is especially true of the elementary school where more direction is needed.

I have exercised some imagination in improving procedures for keeping attendance and handling of school records. In fact, in my last two positions, the central administration requested that I present these procedures to the group of principals from the entire district.

I'm fully aware that the principal is responsible for the total operation of his school. He is accountable for all the resources and the management of a very valuable facility that belongs to the taxpayers of the community.

I am interested and wish to be considered as an active candidate for the Homewood Principalship.

Very truly yours,

Robert Baker

LETTER OF CANDIDATE

Gentlemen:

I am grateful for the opportunity to reply to your request for information on my candidacy for the Homewood position. Although you undoubtedly have seen my credentials, I here offer some personal history and other pertinent data.

After graduating from high school I spent two years in the Armed Services before entering Northern Ohio University. I received my Bachelor's degree in elementary education, with a mathematics minor, from Northern. I served in the Woodsfield, Ohio, schools as an elementary teacher for three years. The last two were spent as a combination elementary-junior high teacher in something of an experimental kind of program.

I then spent a year at Whitehall as a teacher-counselor and following that came to Jackson as a curriculum coordinator. I helped to develop this new position in the system but took the opportunity to enter the principalship at the end of one year.

Among my reasons for this move were the opportunities to apply my curriculum experience, to spend more time with individual teachers, and to assist them to develop their own interests and competencies. I feel I have been able to do this in my role as elementary principal.

If I have been successful in my role I would largely credit this to the emphasis I place upon staff relations. Here at Jackson I have been able to work easily with both older and new staff members, to recognize their achievements through my efforts, and have gained acceptance as their colleague. Through such a relationship we have moved into new programs such as new math and science and a projected team teaching effort.

I offer such qualifications and interest in hope that you will consider my candidacy favorably.

Very truly yours,

Charles Clark

LETTER OF CANDIDATE

Gentlemen:

I am very interested in the position at Homewood and I offer the following information to indicate what I think are suitable qualifications.

I have a Bachelor of Arts degree from Southeastern College and a Master's degree from Central Ohio University. My experience in elementary education includes five years of classroom teaching experience. Two of these were at Portsmouth, Ohio, and three were at Bexley. I also worked as a Library Materials Coordinator with the Delaware County Schools which was an experience I enjoyed very much.

I feel that one of my most important strengths is a natural ability to get along with people. This seems particularly important in working as a principal since children have the opportunity to express themselves more completely. I also think that parents and staff members appreciate this kind of a personality. That such is one of my strengths, I further attribute to the number of friends I have left behind in schools where I have worked previously. This is especially true of my experience at Portsmouth and at Bexley. Since your community is also my present residence I number some friends who are patrons or staff members of the school system.

I believe a principal should have a capacity to be sensitive to human problems and human relations. The superintendent at Portsmouth counseled me to utilize my own strengths in human relations and to seek administrative position where I might capitalize on this capacity.

I enjoy my work as Principal at Brown Elementary particularly for the opportunities it offers of working with parents, pupils, and teachers. I hope you will consider my application for the position at Homewood.

Gratefully yours,

Donald L. Dixon

Information Relative Weights: SAM Program

Criterion Items for Administrative Skills

.69 1. Keeping school records

.65 2. Checking school attendance

.47 3. Preparing reports for the central office

.43 4. Managing the school office

.36 5. Supervising the custodial staff

Criterion Items for Staff Relations

.65 1. Getting *experienced* teachers to upgrade their performance

.62 2. Improving performance of *inexperienced* teachers

.61 3. Getting teachers to use new educational methods

.55 4. Knowing about the strengths and weaknesses of teachers

.54 5. Maximizing the different skills found in a faculty

Protocol of SAM Program: Subject A

```
+ DO PART 1
READ ABELS' VITA AND EVALUATE ON FOLLOWING 4 CRITERIA:
ABELS' EXPERIENCE (AE), ABELS' ADMINISTRATIVE SKILLS (AA),
ABELS' STAFF RELATIONS (AS), ABELS' PERSONAL IMAGE (AP)
        AE(1)=6
        AA(1)=1
        AS(1)=1
        AP(1)=1
READ BAKER'S VITA AND EVALUATE ON FOLLOWING 4 CRITERIA:
BAKER'S EXPERIENCE (BE), BAKER'S ADMINISTRATIVE SKILLS (BA),
BAKER'S STAFF RELATIONS (BS), BAKER'S PERSONAL IMAGE (BP)
        BE(1)=7
        BA(1)=2
        BS(1)=1
        BP(1)=1
READ CLARK'S VITA AND EVALUATE ON SAME CRITERIA.
        CE(1)=6
        CA(1)=2
        CS(1)=1
        CP(1)=1
READ DIXON'S VITA AND EVALUATE ON SAME CRITERIA.
        DE(1)=5
        DA(1)=2
        DS(1)=1
        DP(1)=1
READ ABELS' NOMINATING LETTER AND EVALUATE AS BEFORE.
        AE(2)=6
        AA(2)=5
        AS(2)=6
        AP(2)=5
READ BAKER'S NOMINATING LETTER AND EVALUATE AS BEFORE.
        BE(2)=6
        BA(2)=3
        BS(2)=5
        BP(2)=6
READ CLARK'S NOMINATING LETTER AND EVALUATE.
        CE(2)=7
        CA(2)=6
        CS(2)=5
        CP(2)=4
READ DIXON'S NOMINATING LETTER AND EVALUATE.
        DE(2)=6
        DA(2)=7
        DS(2)=3
        DP(2)=3
```

REVISE ANY RATINGS ON BASIS OF FOLLOWING EXCERPTS ABOUT EACH CANDIDATE FROM LETTERS FROM SEVERAL OF THEIR SUPERIORS.

ABELS HANDLED RESPONSIBILITY AND AUTHORITY DELEGATED TO HIM QUITE WELL. HE SUGGESTED SEVERAL ITEMS FOR IMPROVING IN-SERVICE EDUCATION HERE.

AE(3)=6
AA(3)=7
AS(3)=6
AP(3)=5

ART'S FIRST YEAR SAW HIM SUPERVISE A BUILDING ADDITION. HE HAD OPPORTUNITIES TO EXERCISE JUDGMENT AND RECOMMENDED CHANGES. HE ALSO CHOSE EQUIPMENT AND ALLOCATED SPACE.

AE(4)=8
AA(4)=8
AS(4)=6

MR. BAKER IS A VERY ADEPT ADMINISTRATOR. HIS SCHOOL RETAINS WELL-KEPT RECORDS ON STAFF, PUPILS, AND RESOURCES UNDER HIS JURISDICTION.

BE(3)=6
BA(3)=6
BS(3)=5
BP(3)=6

BOB IS ALSO CONSCIENTIOUS ABOUT THE REPORTS HE FILES WITH MY OFFICE.

BE(4)=6
BA(4)=6
BS(4)=5
BP(4)=6

BOB IS NOTED FOR HIS MANAGEMENT OF THE SCHOOL OFFICE. THE IMPRESSION GAINED IS THAT THE MAN HEADING THIS OPERATION KNOWS WHAT HE IS DOING AND IS FIRMLY IN CONTROL.

BE(5)=6
BA(5)=7
BS(5)=5
BP(5)=6

GOOD ORIENTATION, PERIODIC CONFERENCES, AND AIDING THEIR PERFORMANCE CHARACTERIZE BAKER'S ATTENTION TO NEW AND INEXPERIENCED TEACHERS.

BE(6)=7
BA(6)=7
BS(6)=7
BP(6)=6

HE HAS A UNIQUE ABILITY TO GET THE MOST OUT OF A STAFF COMPRIZED OF DIVERSE TALENTS.

CE(3)=7
CA(3)=7
CS(3)=7
CP(3)=6

AS A FRIENDLY, SENSITIVE ADMINISTRATOR HE HAS BEEN A FAVORITE IN THIS COMMUNITY.

DE(3)=6
DA(3)=8
DS(3)=7
DP(3)=7

```
ASK FOR INTERVIEW WITH ABELS.
AFTER INTERVIEW EVALUATE AS BEFORE.
          AE(14)=7
          AA(14)=7
          AS(14)=6
          AP(14)=6
ASK FOR INTERVIEW WITH BAKER.
AFTER INTERVIEW EVALUATE AS BEFORE.
          BE(14)=7
          BA(14)=8
          BS(14)=6
          BP(14)=5
ASK FOR INTERVIEW WITH CLARK.
AFTER INTERVIEW EVALUATE AS BEFORE.
          CE(14)=6
          CA(14)=6
          CS(14)=7
          CP(14)=6
ASK FOR INTERVIEW WITH DIXON .
AFTER INTERVIEW EVALUATE AS BEFORE.
          DE(14)=6
          DA(14)=7
          DS(14)=7
          DP(14)=5

YOU NOW HAVE COMPLETE INFORMATION ON ALL CANDIDATES.  TYPE A NUMBER
INDICATING YOUR ORDER OF PREFERENCE FOR THE CANDIDATES DIX, CLK, BAK AND
ABL.  THE NUMBER 1 INDICATES THE MOST PREFERRED MAN.

THANK YOU VERY MUCH FOR YOUR COOPERATION.  HOPE TO TALK WITH YOU AGAIN
ONE OF THESE DAYS.

          DIX=4
          BAK=3
          CLK=2
          ABL=1
```

Synopsis of SAM Protocol: Subject A

```
TYPE ALL AE
      AE(1)=   6
      AE(2)=   6
      AE(3)=   6
      AE(4)=   8
      AE(5)=   7
     AE(14)=   7

←TYPE ALL AA
      AA(1)=   1
      AA(2)=   5
      AA(3)=   7
      AA(4)=   8
      AA(5)=   6
     AA(14)=   7

←TYPE ALL AS
      AS(1)=   1
      AS(2)=   6
      AS(3)=   6
      AS(4)=   6
      AS(5)=   7
     AS(14)=   6

←TYPE ALL AP
      AP(1)=   1
      AP(2)=   5
      AP(3)=   5
      AP(4)=   5
      AP(5)=   6
     AP(14)=   6

←TYPE ALL BE
      BE(1)=   7
      BE(2)=   6
      BE(3)=   6
      BE(4)=   6
      BE(5)=   6
      BE(6)=   7
      BE(7)=   5
      BE(8)=   5
      BE(9)=   5
     BE(14)=   7
```

```
←TYPE ALL BA
      BA(1)=   2
      BA(2)=   3
      BA(3)=   6
      BA(4)=   6
      BA(5)=   7
      BA(6)=   7
      BA(7)=   6
      BA(8)=   6
      BA(9)=   6
     BA(14)=   8

←TYPE ALL BS
      BS(1)=   1
      BS(2)=   5
      BS(3)=   5
      BS(4)=   5
      BS(5)=   5
      BS(6)=   7
      BS(7)=   6
      BS(8)=   7
      BS(9)=   7
     BS(14)=   6

←TYPE ALL BP
      BP(1)=   1
      BP(2)=   6
      BP(3)=   6
      BP(4)=   6
      BP(5)=   6
      BP(6)=   6
      BP(7)=   5
      BP(8)=   5
      BP(9)=   5
     BP(14)=   5

←TYPE ALL CE
      CE(1)=   6
      CE(2)=   7
      CE(3)=   7
     CE(14)=   6

←TYPE ALL CA, CS, CP
      CA(1)=   2
      CA(2)=   6
      CA(3)=   7
     CA(14)=   6
```

```
NO GOOD
              CS IS UNDEFINED
←TYPE ALL CS
      CS(1)=   1
      CS(2)=   5
      CS(3)=   7
     CS(14)=   7

←TYPE ALL CP
      CP(1)=   1
      CP(2)=   4
      CP(3)=   6
     CP(14)=   6

←TYPE ALL DE
      DE(1)=   5
      DE(2)=   6
      DE(3)=   6
     DE(14)=   6

←TYPE ALL DA
      DA(1)=   2
      DA(2)=   7
      DA(3)=   8
     DA(14)=   7

←TYPE ALL DS
      DS(1)=   1
      DS(2)=   3
      DS(3)=   7
     DS(14)=   7

←TYPE ALL DI
     DI (1)=   1
     DI (2)=   3
     DI (3)=   7
    DI (14)=   5

←TYPE ABL
        ABL=   1
←TYPE CLK, DIX, BAK
        CLK=   2
        DIX=   4
        BAK=   3
```

Synopsis of SAM Protocol: Subject B

```
TYPE ALL AE, AA, AS
     AE(1)=   5
     AE(2)=   3
     AE(3)=   6
     AE(4)=   3
     AE(5)=   5
     AE(6)=   3
     AE(7)=   1
    AE(14)=   7

NO GOOD
        AA IS UNDEFIN
←TYPE ALL AA, ALL AS
     AA(1)=   1
     AA(2)=   3
     AA(3)=   4
     AA(4)=   1
     AA(5)=   5
     AA(6)=   2
     AA(7)=   1
    AA(14)=   8

     AS(1)=   1
     AS(2)=   5
     AS(3)=   4
     AS(4)=   1
     AS(5)=   4
     AS(6)=   3
     AS(7)=   1
    AS(14)=   6

     AP(1)=   2
     AP(2)=   3
     AP(3)=   5
     AP(4)=   1
     AP(5)=   6
     AP(6)=   2
     AP(7)=   1
    AP(14)=   7

←TYPE ALL BE, ALL BA
     BE(1)=   6
     BE(2)=   2
     BE(3)=   1
     BE(4)=   1
     BE(5)=   1
     BE(6)=   5
     BE(7)=   5
     BE(8)=   5
     BE(9)=   5
    BE(14)=   1
```

```
     BA(1)=   4
     BA(2)=   1
     BA(3)=   1
     BA(4)=   1
     BA(5)=   1
     BA(6)=   6
     BA(7)=   6
     BA(8)=   6
     BA(9)=   6
    BA(14)=   2

     BS(1)=   2
     BS(2)=   2
     BS(3)=   1
     BS(4)=   1
     BS(5)=   1
     BS(6)=   6
     BS(7)=   6
     BS(8)=   7
     BS(9)=   7
    BS(14)=   1

     BP(1)=   3
     BP(2)=   3
     BP(3)=   1
     BP(4)=   1
     BP(5)=   1
     BP(6)=   7
     BP(7)=   5
     BP(8)=   5
     BP(9)=   5
    BP(14)=   1

     CE(1)=   5
     CE(2)=   6
     CE(3)=   7
    CE(14)=   6

     CA(1)=   2
     CA(2)=   3
     CA(3)=   7
    CA(14)=   7
```

```
     CS(1)=   2
     CS(2)=   2
     CS(3)=   8
    CS(14)=   8

     CP(1)=   4
     CP(2)=   6
     CP(3)=   5
    CP(14)=   4

←TYPE ALL DE, ALL DI
     DE(1)=   4
     DE(2)=   3
     DE(3)=   1
     DE(4)=   4
     DE(5)=   3
     DE(6)=   3
    DE(14)=   2

     DA(1)=   1
     DA(2)=   2
     DA(3)=   1
     DA(4)=   4
     DA(5)=   3
     DA(6)=   4
    DA(14)=   3

     DS(1)=   1
     DS(2)=   1
     DS(3)=   1
     DS(4)=   3
     DS(5)=   3
     DS(6)=   4
    DS(14)=   2

NO GOOD
        DP IS UNDEF
←TYPE ALL DI
     DI(1)=   5
     DI(2)=   1
     DI(3)=   1
     DI(4)=   6
     DI(5)=   3
     DI(6)=   5
    DI(14)=   2
```

t
m CERIC
MUST BR